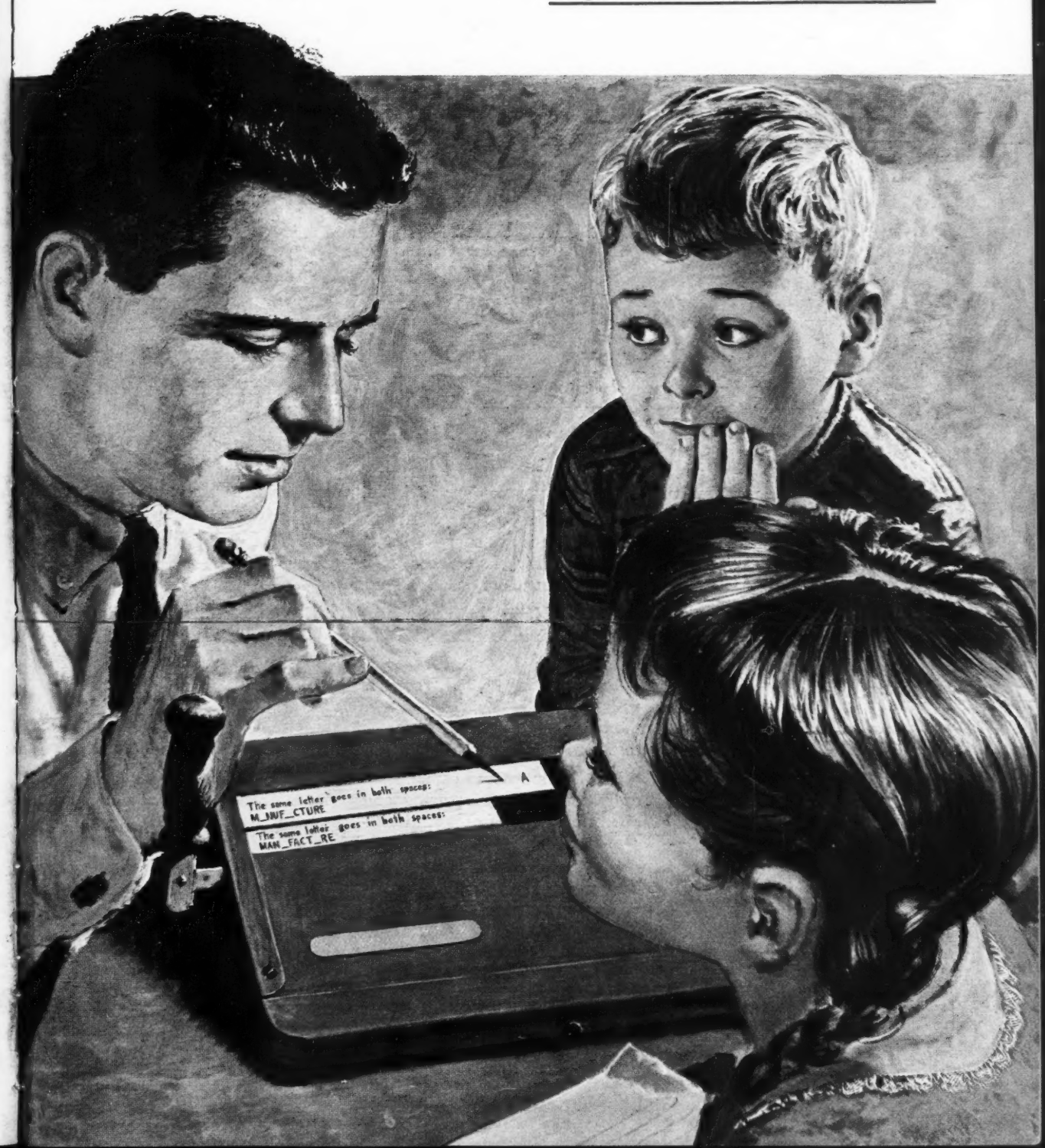
NEA JOURNAL

NOVEMBER 1961

New Inventions for Survival
Where But in Kindergarten?
Refocusing the English Program
The Teacher and the Professor
Education for What?
The Land-Grant Centennial
Programed Learning and Machines



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NOVEMBER 1961

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MILDRED SANDISON FENNER
Editor

WALTER A. GRAVES
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Assistant Editor

PAUL A. SHINKMAN
Assistant Editor

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COVER: *Marlene and Billy have a questioning attitude toward teaching machines. What can a machine possibly do that Teacher can't? For differing viewpoints on teaching machines and programed learning, see pages 15 through 30 of this issue. Illustration by Thornton Utz.*

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A MILLION OR MORE BY '64

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NEA JOURNAL

JOURNAL OF THE NATIONAL EDUCATION ASSOCIATION

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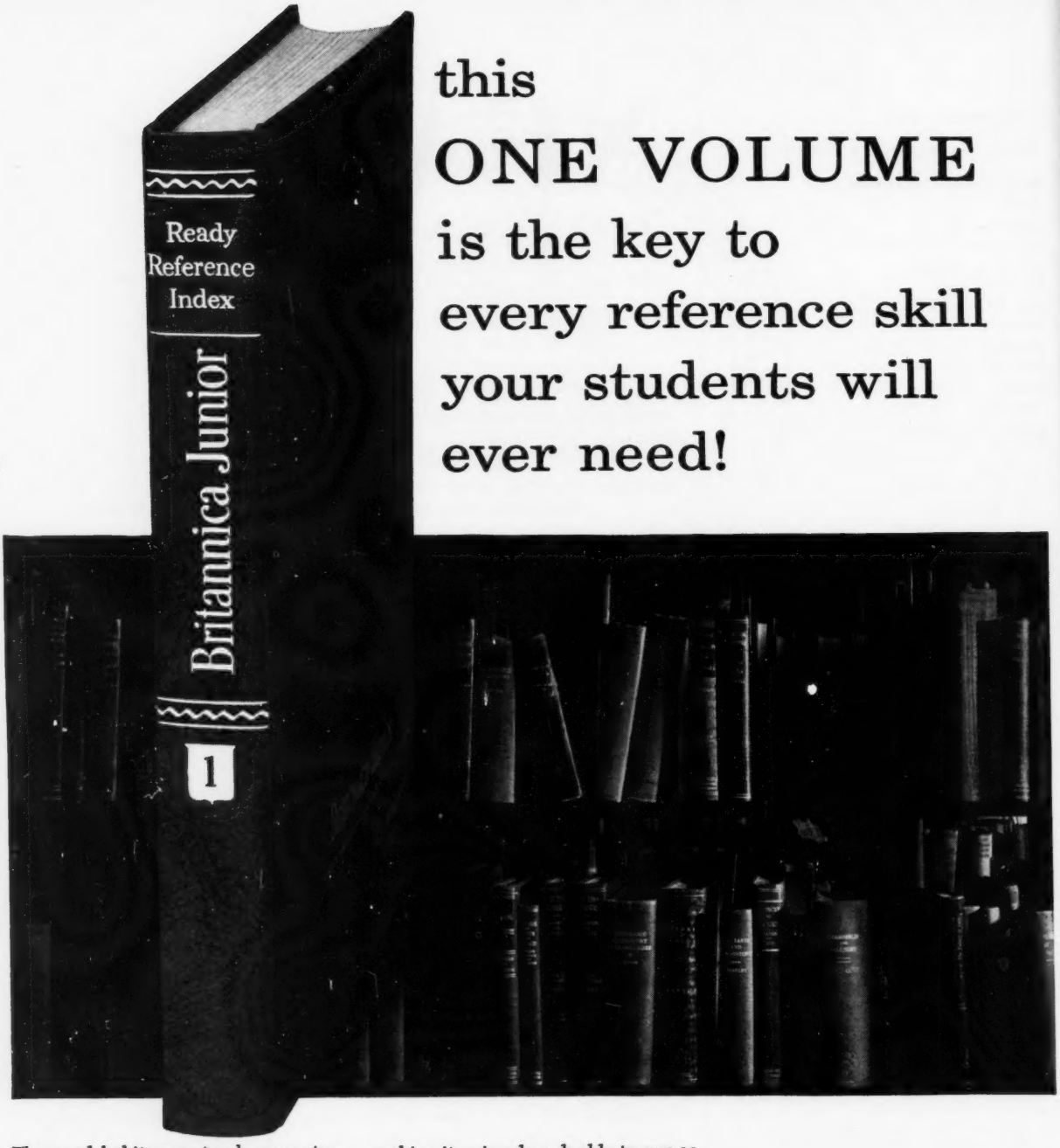

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NEWS and TRENDS

Collective Bargaining: Historic Agreement

► Two rival teacher organizations in New York City announced in mid-September that they had come to an agreement on a common salary goal and would form a new bargaining coalition. Agreeing to form the new group are the Secondary School Teachers Association, formerly committed to a salary differential for its members, and the Elementary School Teachers Association, defenders of the single-salary principle. In addition, the following organizations are supporting the coalition: Queensboro Teachers Association, Brooklyn Teachers Association, Staten Island Teachers Association, Bronx Boro-wide Teachers Association, New York Teachers Association, Teachers Alliance, and the New York City-NEA Council. (Four other teachers organizations are "considering" joining the move.) Although unified, each group will maintain its individuality.

The new organization, to be known as the Teachers Bargaining Organization of New York City, will deal with all teachers' rights, its leading spokesmen stated, but it will make the new salary plan its top priority. The plan includes a professional specialization differential, long sought by secondary-school teachers, and makes it available to qualified teachers at both the elementary- and secondary-school level. To promote the interests of New York's 40,000 teachers, the newly unified groups have selected a team of outstanding teacher-leaders to represent them in negotiations with the superintendent and the board of education.

The National Education Association helped to work out the agreement during months of conferences in which it served as a liasion agency. Eric Rhodes, director of the New York City Office of NEA, will serve as a consultant to the new organization.

A New Vision for Education

► "In looking to the future, we must find some effective way of dramatizing what education can really do for our country, its economy, and its people," said Sam M. Lambert, NEA Research Division director, in a keynote address at NEA's Fourth National School for Teacher Salary Scheduling, held in September. "And, in my opinion," Dr. Lambert continued, "this is not going to be done with little ideas and short-range plans. This is the time for bold ideas and great vision of what we can do with more money and what the effects will be."

His recommendations: (a) Require teachers to attend college for six instead of four years. The first four years would be devoted to general education and the last two to what and how to teach. (b) Set up a program to allow brighter pupils to complete their public-school education in ten or eleven years instead of twelve. This, Dr. Lambert estimates, could eventually save $163.5 million annually (at present costs per pupil of $442) if five per cent (or 185,000 in 1959-60) of the first-grade enrollment were bright enough to go through school in ten years instead of twelve. The money thus saved could be used to attract the best qualified teachers. (c) Set up a summer program of remedial work for academically retarded pupils. (d) Increase the number of guidance personnel to counsel pupils and thus decrease the number of school dropouts. "In the long run," he said, "it may be cheaper to give these boys and girls the guidance they need than to pay for the problems they will create through idleness."

Participating in the salary school were 132 leaders from state and local associations. They came from the fifty states, the District of Columbia, and Puerto Rico. The annual school is sponsored by the salary consultant service of the NEA Office of Professional Development and Welfare.

New Louisiana Decision

► The National Education Association was advised on October 11 that the Office of the Attorney General of the State of Louisiana has modified its earlier opinion that a teacher of the state would be subject to dismissal if a member of the NEA. The revised opinion states that "the NEA is not by law nor injunction prohibited from operating in Louisiana and, therefore, a member of that group who is a permanent teacher cannot be removed as a teacher merely because of membership in the group."

The review of the issue which led to the revised opinion followed efforts by Louisiana members and affiliates of the NEA, and by Baton Rouge attorneys associated with NEA's legal counsel in Washington, D.C.

State Decision on Religious Reference

► In a recent decision New Jersey's state commissioner of education, Frederick M. Raubinger, upheld the singing of Christmas carols and Hanukkah songs and the saying of grace before meals in New Jersey schools. These are vital, he said, to the social growth of individual pupils and will remain in the schools. Dismissing a petition from a Freehold, New Jersey, couple which called the religious practices illegal, unconstitutional, and contrary to their convictions, he added, "If every religious reference is to be eliminated from the public schools, the writings of Milton, Tennyson, and Shakespeare and the music of Bach, Handel, Beethoven, and Negro spirituals also would have to be prohibited."

NEA Insurance Plan Effective December 1

► The NEA Insurance Plan will become effective December 1, 1961. Early in November each NEA

member will receive another enrollment brochure and additional materials concerning the new NEA life-insurance plan. Thousands of teachers have already mailed their enrollment forms which were included in the September NEA JOURNAL.

Newell B. Walters, NEA teacher welfare consultant, urges NEA members who have not acted to enroll this month. By doing so, they will help increase the total number of enrollment forms to be evaluated from a health standpoint by the insurance company as of the effective date. An automatic increase in amounts of insurance on December 1, 1962, will be made without increase in contribution rates. Further improvements in the plan may be possible as experience develops and if members participate in sufficient numbers.

Teachers in Reserve or National Guard

► In order to obtain discharge or deferment during the present world crisis, any teacher in the Reserve or National Guard will have to justify his job as a "critical occupation," say officials of the U.S. departments of Labor and Defense. Teachers already called back to reserve duty must report unless extreme hardship to school system or community can be proved.

Science at "Century 21 Exposition"

► Almost two million youngsters are expected to participate in the do-it-yourself exhibits of the National Science Teachers Association (NEA) at the first space-age world's fair in Seattle, Washington, April 1962 through October 1962. To introduce science concepts to children ages nine to thirteen, a series of about thirty exhibits is being designed by NSTA. Robert A. Rice, head of the science department at Berkeley (Calif.) High School, who is NSTA coordinator for the project, is working closely with the U.S. Department of Commerce, sponsors of the exposition.

College Enrollment: State-by-State Rank

► Between 1950 and 1960 the Western and North Central states expanded their higher education systems more rapidly than the South and the Northeast. This is indicated by a new University of Michigan study, based on data obtained from the U.S. Census Bureau and the Office of Education. In the study, the states and the District of Columbia were ranked by ratio of students to college-age population.

Key states illustrating the trend: In 1950 California had 18 of 100 persons aged 18-24 seeking college degrees. By 1960 this proportion rose to 32 out of 100, a gain of 14. Today California has the highest total enrollment (447,995) of any state. By contrast, in 1950 New York had 21 students for every 100 college-age youth. Today New York has 27 students for every 100 people aged 18-24, a growth rate of six. Nationally, New York ranks second in total college enrollment (351,208), but has slipped from fourth to fourteenth place in the ratio of students to college-age population.

The 10 states showing the greatest percentage gains on this basis during the past decade are, in order: the District of Columbia, South Dakota, Nebraska, California, Oregon, Wyoming, North Dakota, Utah, Arizona, and Massachusetts. In these states, the individual increases ranged from 11 to 19 students for every 100 college-age youths. For the entire nation, the increase averaged about 8 students per 100.

Degrees in Education

► Education led the subject-matter fields in number of bachelor and master's degrees earned in 1959-60 at American colleges and universities. At the doctor's level, degrees in education were exceeded in number only by those granted in the physical sciences. The number of education degrees conferred at the bachelor's level was 22.8 per cent of the total number of degrees in all fields in 1959-60; at the master's level, 45; and at the doctorate, 16.2. Despite percentage increases at all three levels, when totals in all fields are compared with 1958-59 figures, doctorates in education were down 1.5 per cent.

Facts, Figures, Faces

► Three out of every five college students who have borrowed money under the National Defense Education Act of 1958 are planning to teach, thus fulfilling one of the major goals set by Congress in passing the act. Among college students generally, only about one in four enter teaching.

► U.S. Office of Education estimates the 1961-62 enrollment total is 49,300,000 in the nation's public and private schools from kindergarten through college—an increase of 1,400,000 over last year.

► Seventeen series of telecasts are now being transmitted by the Midwest Program on Airborne Television Instruction based at Purdue University. Nine are on the elementary level; four, on the high school level; four, on the college level. Several new offerings are expected to be added to the schedule beginning in January 1962.

► About 40 per cent of the young people in the United States do not graduate from high school. Of the 26 million new young workers who are expected to enter the labor market during the 1960's, 7.5 million will not have graduated from high school and 2.5 million will not have completed the eighth grade, according to U.S. Department of Labor Statistics.

► Opportunities for Americans to teach abroad numbered about 500 this year under the Teacher Exchange Program of the U.S. government. The United States is exchanging teachers with sixteen other countries and sending teachers on one-way assignments to thirty additional countries. On the lists for the first time last year were Guinea, Libya, Spain, Sweden, and Uruguay.

OUR READERS WRITE

♦ *This feature of the* JOURNAL *is an open forum for its readers. Ideas and opinions expressed here are those of the writers and not necessarily of the NEA.*

On the Beam

TEACHERS and socially minded citizens alike should read "The Central Purpose of American Education" in the September JOURNAL. This Educational Policies Commission statement wisely reiterates our moral commitment to the purposes that have undergirded education in this century and then speaks out loud and clear about the meaning of freedom in our democratic society at a time when the freedom which exalts the individual is threatened.

The schools must continue to focus on developing the ability to think. The development of every student's rational powers is centrally important.

—HELEN HEFFERNAN, *chief, Bureau of Elementary Education, California State Department of Education, Sacramento.*

"THE Central Purpose of Education" is well done, but if it were shorter, it would have more impact and more readers.

Many years ago I met James Michener when he was a social-studies teacher. His story, "Who Is Virgil T. Fry?," is excellent and appealing. I'd like more of the same.

"Teen-age Marriages" also appeals to me as just what I'd expect from Earl Hanson: a well-balanced, serious discussion without being too moralistic or "preachy."

—HENRY HILL, *president emeritus, consultant to the Center for Southern Education Studies, George Peabody College for Teachers, Nashville, Tenn.*

Marriage Mart

WE feel that in his September article Dr. Hanson tends to exaggerate the frequency of teen-age marriage. At any rate, the lower median age of marriage is not sufficient evidence to prove that teen-age marriages are increasing. But even if they are increasing in this country, early marriages do not appear to have adversely affected school attendance. Census Bureau records since 1900 show a steady increase in the percentage of the school population coming from the age group between fourteen and nineteen.

We also feel Dr. Hanson does not pay enough attention to the fact that teen-age marriage is most prevalent within the low socioeconomic group. This is the group where families may not be financially able to keep their youngsters in school, where home environment probably has not placed enough emphasis on the value of school, and where poor family relationships may lead young people to want to escape via marriage into what they hope will be a happier situation.

Unfortunately, it is in working with this social class that our schools have been most inadequate. Until more of our teachers are able to overcome their own bias and learn to work with, understand, and motivate children who may not share their attitudes and values, school dropouts and teen-age marriages are likely to increase.

—JAMES K. SKIPPER, JR., *Department of Patient Care Research, Presbyterian-St. Luke's Hospital, Chicago, and*

SUGGESTIONS we hope prove helpful

FOR PIONEER UNIT

Community loans—many valuable antiques—make thrilling pioneer exhibit as told by Kathryn Seville in the Indiana Teacher magazine. Digest of article, below

Citizens lend their prize antiques (even collectors' items) to our 6th grade for our annual pioneer exhibit. Some items are over 100 years old. Appreciation of our heritage is stressed in this unit of work. Although part of English studies, it combines social studies, art, music, and some arithmetic.

Before first item is borrowed, there is class discussion about need for careful handling, importance of dependability, and respect for the property of others.

For our 9th exhibit 400 items were loaned. As each is brought in by a pupil, two committees start to function. Meticulous records give history of item and names of pupil and lender.

These records are basis of pupils' 48 page mimeographed catalog. Numbers help visitors quickly to identify the antiques.

When exhibit is arranged, part of English assignment are letters to other teachers and classes and invitations to lenders, parents and relatives. Pupils write script.

Theme of program usually comes from some item or unusual antique loaned. Once it came from etchings of early Americans and included songs and verse about Washington, Benjamin Franklin, Noah Webster, Francis Marion.

Items exhibited have ranged from 400-year-old arrowhead to spinning wheel, samplers, 108-year-old cradle, McGuffey reader, coverlets, battle flags, old candle mold, and 1812 sword.

Always a happy, natural little pickup!

Enjoy the satisfying little lift in Wrigley's Spearmint Gum. The bit of sweet in the lively flavor is delicious yet never rich or filling.

I Was Afraid of the Child Stealers

Prem Leila

Mr. Challagali, train examiner for the Indian railroad from Calcutta to Madras, reports, "I saw a little girl sleeping under a third-class bench. She could not tell me about her parents as she was only four. I feared the child stealers would sell her to the beggars who cripple the children or make them blind so that they can arouse pity as professional beggars. Her mother must have deserted her because she was too poor to feed her. She looked terribly hungry. I took her to the police, although I did not think anyone would claim her and no one did. As I had brought her, the police made me take her back. So I took the poor little half dead thing home. But it meant less food for my children and I knew I could never educate her on my meager income. I would have liked to have kept her, but took her to the Helen Clarke Children's Home."

Mrs. Edmond, the director of the Home, crowded the child in and named her Prem Leila, meaning kindness or love, because she was saved by a man's pity and kindness. Not only in India, but in a number of countries in which CCF assists children, there are so many thin, sickly, little tots deserted by desperate mothers who rather than continually witnessing their hunger desert them, hoping someone who can, will feed them. While so many of us in America are overfed, half the children in the world go to bed hungry every night. Such children can be helped by any gift or "adopted" and cared for in CCF Homes. The cost to "adopt" a child is the same in all countries listed below—$10.00 a month.

Christian Children's Fund, incorporated in 1938, with its 412 affiliated orphanage schools in 43 countries, is the largest Protestant orphanage organization in the world, assisting over 36,000 children. With its affiliated Homes it serves 32 million meals a year. It is registered with the Advisory Committee on Voluntary Aid of the International Cooperation Administration of the United States Government. It is experienced, efficient, economical and conscientious.

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I cannot "adopt" a child but want to help by giving $_____
☐ Please send me further information.
NAME_____
ADDRESS_____
CITY_____ Zone_____
STATE_____
Gifts of any amount are welcome. Gifts are deductible from income tax.

JOAN L. SKIPPER, *Thomas Edison School, Morton Grove, Ill.*

WE like Dr. Hanson's treatment. His point that early marriages are here to stay means we must all do more to help young people face the realities of family life and prepare for their future homemaking roles.

—DOROTHY S. LYLE, *president, American Home Economics Association, Washington, D. C.*

IT'S noble of Dr. Hanson to worry about the pregnant problems of ex-students, but this is entirely the parents' responsibility. Dr. Hanson should concentrate on what's happening inside his schools and on planning what he can do to better his teachers and curriculum.

—ROBERT G. ARTHUR, *Nathan Hale School, Huntington, N. Y.*

DR. Hanson touches a highly pertinent factor when he quotes teen-agers as saying, "You treat me like a child. . . . I've grown up." This indicates a breakdown in the family relationship and neglect or abuse of the child's need for supportive affection. The educational system is the only social agency that can help prevent these hurt and angered youngsters from making rebellious attempts to escape into marriage.

—B. Y. GLASSBERG, M.D., *lecturer, Harris Teachers College, St. Louis, Mo.*

PRACTICE in budget making won't prevent teen-agers from marrying, but perhaps frank discussions on how to control their emotions—and the consequences of not controlling them—will help.

—DONALD K. BROWN, *graduate student, Western Washington State College, Bellingham.*

(Continued on page 58)

For Your Information

NEA President, EWALD TURNER
Executive Secretary, WILLIAM G. CARR
Assistant Executive Secretary for Information Services, FRANK W. HUBBARD
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NEA divisions, committees, commissions, council: *Handbook*, pages 66-111.
World Confederation of Organizations of the Teaching Profession: Information free from NEA; see *Handbook*, pages 308-310.

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SIR RONALD GOULD, general secretary of the National Union of Teachers of England and Wales and president of the World Confederation of Organizations of the Teaching Profession.

Guest Editorial

A Help and an Ornament

"I HOLD every man a debtor to his profession; from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavor themselves by way of amends to be a help and ornament thereunto." In Francis Bacon's words, despite their old English quaintness, lies a present-day challenge for all of us who teach.

What magnificent words his are! But how shall we endeavor to be a help and an ornament to teaching? The conditions, I think, are fivefold.

First, we must all be educated as teachers. This means that we must know what we are teaching and that we must teach from a wide knowledge. We must have a broad understanding of life as it is lived today and some idea of how it is to be lived tomorrow, since we are educating children not just for today but for tomorrow. To be able to communicate what we know to children, we must understand how they develop and how they learn. And we must cultivate personalities—or abilities, if you prefer—which will inspire those we teach.

Second, we must go on learning all through our lives as teachers. The teacher who has read nothing of real moment, studied nothing since he left college twenty years ago, is no longer fit to teach. He has had plenty of opportunities and he has not grasped them. The profession itself must see to it that teachers are given constant in-service training. One of the marks of a real profession is its assumption of responsibility for education of its members.

Third, we must win public support. We must show the public that the schools are doing a good job and are well worth what they cost. We should not go around telling the world all the time that we are underpaid, or that this, that, or some other thing is wrong. Instead, at the same time we are working hard to improve the schools, we must tell the world what is right with the educational system.

This is not always simple to do, as you, my colleagues in America, know. What a flap people got into when Sputnik went into orbit, and the pundits turned to the schools and said, "You've let us down."

Then when America started putting things into orbit, did the press say, "Oh, what a wonderful job the schools have done"? Not at all. Few people even realized the connection between the schools and what the nation had done.

But, in fact, look what your schools have accomplished. Not only have they laid the foundation for scientific advance, they have also given you the highest standard of living of any people on earth. This cannot be achieved without an effective educational system and you ought to be telling that to the world.

Fourth, we must see that teachers are treated as partners in the education process and not just as employees. This objective can be worked out in many ways. For example, in one English county, whenever a new school has been occupied for six months, the director of education calls in county officials, builders, and faculty to evaluate the building. The result is that every school built in that county is better than the last one.

Fifth, we must establish freedom of action for the profession, individually and collectively. Professional excellence—and that only—should be the basis for appointment and dismissal of teachers.

But freedom, individually and collectively, will never be achieved just by individuals struggling alone. It will be achieved only when the teachers of a country—indeed the teachers of the world—really believe that they are one body, that they are linked together. And this means that teachers ought to be struggling for a measure of autonomy like that achieved by doctors and lawyers. We must set rigorous standards for entrance into our profession, maintain standards, and determine who shall be ejected for failure to live up to standards. This is an ideal not yet realized by teachers anywhere on earth, but teaching will never be a real profession until it is achieved.

To be a help and an ornament—this is our charge. If we meet it together, we can make teaching a great profession, and we can make an enormous contribution to the well-being of society now and in the days that are yet to be. # #

BETTY G. MELICHAR, kindergarten coordinator, Riverside (Illinois) Central School.

Where but in Kindergarten...

THERE has scarcely been a day in my last thirty years of teaching kindergarten when some child has not warmed my heart with unexpected candor or lifted me over the threshold of make-believe into a land of pure enchantment. Where but in kindergarten does one entertain pixies one minute and tie someone's shoe the next?

It has often occurred to me that if I had been paid for every shoe I've tied, I'd have enough money to fly around the world. Never mind, I'm saving that for when I retire. But the world where one flies with the five-year-old, day by day, is delight itself.

The questions you are asked often leave you speechless. In the middle of a busy morning, one boy asks: "Will you do me a favorite? Will you sing the 'Star Spaniel Banner'?"

After this is postponed for a more suitable time, Leslie inquires: "Do you know how I get the paint from thick to nice?"

"No," I answer.

"I just keep on stirring it with a paint brush," she advises me in a philosophical manner.

Judy looks up from the table where she is painting and says: "We have two poodles at home. Their names are Sears and Roebuck. Roebuck growls and Sears bites. My daddy works at Sears, Roebuck and Company. What is a company?"

Tommy is ready with an answer. "A company means a whole building with lots of men in it —working."

Mary Jo wants to know why dogs sniff people and Tommy tells her, "Because they want to know who you are. They have good remember noses."

Then there are the questions children ask each other. Bobby and John are playing in the doll corner. John asks Bobby, "Don't you want a wife? Go get yourself a wife. Get that girl over there."

Bobby then asks Sally, "Will you be our wife in the doll corner?" Sally shakes her head no.

Bobby shrugs, "Well, we are still bachelors."

Then Sally changes her mind and says, "All right, but you boys will have to fix your own supper. I'm going to bed now. Goodnight."

IN the same straight-forward, uninhibited way, the five-year-old appraises everything from nature to love. He is touched by things in a simple, delightful way and is likely to make up a poem at the most unexpected moment.

For more springs than I care to count, children have brought me dandelions—tight little bunches held in warm little fists. They hold them out to me. Their eyes tell me all there is to be said.

One morning when we were talking about dandelions, Jonathan said:

O dandelion, dandelion,
Grow up to the sun
You will see how gold it is!

After we had been examining a tulip and learning its various parts, Betty Lou said:

A flower was opening up.
It opened its petals wide,
Another flower opened
With yellow dust inside!

The question "What is love?" was raised one day and brought many answers. We knew it was not something you could hold in your hand or put in your pocket; but it was something we could feel. They said:

Love is saying you are nice,
You may have a turn first,
You are a friend of mine,
Love is a smile.

Love is giving,
Like giving presents.
Love is like stars and flowers and angels.
Love is kind!

The child's awareness of many good things around him is sharpened at Thanksgiving time. Linda may begin giving thanks by saying, "I'm

Carl Purcell Photo

thankful to God because the peanut butter tastes so good," but the children usually start with God and then go on to the stars and birds and, of course, Mommy and Daddy, baby brother, and sister. Then they think of things like pumpkins and bees, grasshoppers and trees, and a warm, tucked-in bed at night. All their favorite friends are included: the bunny and the squirrel, the frog and the fox, and the make-believe pony that goes like the wind.

MANY children have more insight than we realize. Sometimes they think quite deeply about things. Their direct answers often plunge into the heart of the matter with astonishing awareness.

One day in connection with a study of boats, we talked about the way sand is formed from the wearing away of rocks. This led us to see the difference between soil and sand and the ingredients they include. Carter said there was something much smaller than a speck of dirt called an "atom." He said atoms were used in "old-fashioned" atom bombs but that now there were newer ones called hydrogen bombs.

I asked questions to probe their thinking on the need and the use of these bombs. I also asked what steps might be taken to promote an enduring peace in the world. Naturally, these questions were phrased on their level of comprehension.

The following conversation ensued:

CARTER—In case a war comes, we need bombs. If we didn't make them, we would get all bamboozled up because we weren't ready. We don't want to bomb people, but we have to make them so other people will know how strong we are.

ANDY—What we should do is to learn other languages, like we learn French in kindergarten, so we won't have any war. We should make friends with other countries.

CALVIN—We can't just say okay to everything, though. Who wants to be friends with wrongdoing?

CARTER—No one does. But instead we want to talk it over with people who did it. Sometimes people make mistakes or they have accidents. We should find out about things like that. That's the way to make peace.

IN introducing symphonic music to the young child, I play only a part of a movement at a time. This much they can absorb without becoming restless. We listen for instruments we know and respond in a rhythmic way. Their comments about the music reveal penetrating observations.

After hearing the first part of Beethoven's *Fifth Symphony*, they made these comments: "This music works very hard. It sounds like it's climbing and then it zooms down. It sounds like knocking on the door real hard."

The girls like to choose colored scarves and dance to Tschaikowsky's *Swan Lake Ballet*. They take off their shoes and have a wonderful time waving the scarves and floating dreamily around the room. The music is easily recognizable and whenever they hear it, they raise their hands, eager to tell me what it is.

We correlated Debussy's *La Mer* with our study of ships. After listening to short excerpts several times, the children said:

"This is music about the sea. The sea water is moving. Sometimes it is calm. Sometimes there's a storm. It sounds like sea animals, like an octopus biting. I hear ripples of waves going by. The seaweed is moving back and forth. Fishes are caught in the seaweed. They are trying to get out. The boats are going smoothly. The sea horses are moving along fast through the water."

The motif in Mendelssohn's *Italian Symphony* is easily discernible. We wait for it and sing out with the horns. When asked how it sounded to them, the children replied:

"This is happy music. It builds up and up and up, like singing voices. The music goes up, like in a glass tube, and then comes down. Sometimes it sounds like it's going upstairs. It is smiling music."

The distinguished modern painter, Paul Klee, painted with the simplicity of the young child. Children understand and accept his paintings as readily as adults do. After being introduced to a number of his paintings, the children imitated his style and shapes.

In summing up Klee's talents, one five-year-old said:

"He paints designs instead of plain pictures. Designs are different. You can't have too much color in one place. You have to put colors around so they look just right!"

We have enjoyed many of Renoir's paintings, especially his *Girl With a Watering Can,* which produced such comments as these:

"Renoir is a good painter. He worked hard and practiced many times to make pictures this way. I think he likes little girls, especially this little girl. Even though it is dark bluish black, with all that kind of sober stuff, he makes the picture look nice. I think he mixes black with a drop of blue to make it look bright."

"Renoir paints very well. He doesn't get out of the lines because he paints in from out. That's the way painters do it, I think."

THE teacher-child relationship in the kindergarten has a warmth and depth of understanding which is impossible to measure. Once it is established, it gives the child a basic security. It is this relationship that encourages the child to attempt new things on his level and to begin to develop his potential individuality.

When the child realizes the firm, underlying affectionate acceptance of himself in this new environment, his tensions and uncertainties quickly dissolve. From this point on, his selfhood gradually emerges. In a world of doubt, distrust, and devious thinking, the child gives the intangible qualities of trust, love, and sincerity. These the teacher cherishes. It is these intangibles of teaching that make a lifetime career in the classroom so worth while. # #

Unlike Greece or Rome, if nations fall today, civilization itself may be forever obliterated.

New Inventions for Survival

MARGARET MEAD, associate curator of ethnology, the American Museum of Natural History, and author of numerous articles and books.

TODAY each small segment of the human community—whether it be a nation, a profession which spans many nations, a religious denomination, or a group organized along racial or politically divergent lines—is responsible for the whole.

A failure anywhere—within a nation to preserve orderly government, within a profession to move sensitively with the times, within a religious denomination to remember all men are brothers, within those who would organize some group made special by skin color or economic deprivation—may mean not simply relegating part of the world to the condition of a depressed area, abandoning some empire to the fate of Greece and Rome, or even facing the dangers that we faced in the 1940's, but rather genocide on a major scale and a decline into prescientific barbarism.

Today in some ways we are less like the world of 1940 than the 1940 world was like the world of 200 A.D. We are, in the extent to which failure may be disastrous, more like the world of tens of thousands of years ago when our species first appeared on earth, a small, weak, poorly armed and poorly equipped competitor for a place in the sun. Then men were so few and so isolated, and their knowledge so slight that the smallest failure to cope with a series of natural disasters like floods and fires, volcanoes or epidemics, might have wiped them all out. Now men are so many, so crowded together, and so closely communicating, and they know so much about how to manipulate the natural world that again the smallest failure to keep in check the destructive devices we now possess may endanger the survival of the whole.

We live therefore in a paradoxical situation, superficially as far removed as it is possible to be from lonely little bands of skin-clad hunters armed with tools and weapons of stone and bone, pushing intrepidly and desperately ahead into unknown territory, driven by fear of what was behind and a glimmering vision of what might be ahead.

For many thousands of years we were far removed from their condition. Great kingdoms, well-equipped with devices for feeding multitudes and defending themselves against enemies and sailing the seven seas, have risen and fallen, so far from each other that there was hardly an echo on one continent when thrones toppled on another continent. The accumulating experience of ages, the culture by which man with his flexible brain and flexible hands makes the world he lives in and which he must teach anew to each generation, was safe in many thousands of different cultures.

When some central government overreached itself, when what had been a kingdom or an empire fell to pieces, these were essentially local disasters and there was surprisingly little permanent loss. Usually the temples, the bas-reliefs, and the sculpture remained. We lost, perhaps, music which would have enriched the imagination of later men, dances which could neither be recorded or frozen in stone, and, where there was no real writing, unique formulations of man's relationship to the universe. But human culture itself was safe, with its basic and necessary institutions and inventions, language, family social organization, techniques for food getting, transportation, methods of teaching and learning. Safe also were the members of the human race, surviving only by virtue of the culture which they themselves embodied and in turn translated.

Today, we hear questions about whether America will lose her greatness, or whether like Greece or Rome, we are going to decline, fall, crumble, wither away, or become the satellite or tributary of some new empire. These questions are made the more cogent by the undoubted hope on the part of some new nations that they will somehow, through the use of new political instrumentalities, rival Rome in their sway over vast populations and vast territories.

But these fears and these hopes are equally obsolete and almost equally dangerous. Regardless of whether Russia or Red China dreams of conquest, France hopes to regain some ancient and unrecapturable glory, or the peoples of the United States and Britain, Japan or Holland lapse into gloomy contemplations of lost autonomy or colonial power—the true condition of the world remains the same.

No nation can go down today without the risk of taking the world with it. The world cannot afford such catastrophic changes in power as would be represented by America's loss of world responsibility or some other power's assuming any single responsibility for the whole. Our fates are bound together, and a failure to act on this assumption will mean the loss of all.

Within this new situation, one that mankind has not faced for thousands of years, education is peculiarly challenged. Education has been that slowly growing institution by which the knowledge of the past was learned, conserved, and taught to more and more children, thus consolidating the gains of the past, and extending the number of those who were its guardians. Education has always looked backward, conserving the old, even while in the laboratories and libraries and studios there have been scientists, scholars, and artists busily creating the new.

There has been a kind of opposition between the content of our educational system which we owed to the past (albeit sometimes to the very immediate past) and the forms of our educational system as we attempted to find new methods to teach the new children of a changed world those things which we had taught them before.

Yet, if education is to play a part in creating a climate of opinion within which the necessary inventions for world-wide survival can be made, radical changes must be made within education itself. Simply teaching the past will not do, for the past has become a poor guide to the future if it is taught alone without the present and the future.

Equally, abandoning the past in a desperate attempt to orient children in the present will not do. Without a sense of the past, children cannot learn to think about the future in depth. The heights of outer space and man's future in relation to them must be matched with a corresponding exploration of the depths of the sea and the depths of the earth.

Our children will either be tethered by a short rope to a present which they will then, as young adults, attempt to consume all at once greedily, without responsibility for the future, or we can establish them at one end of a rope that permits a swing through time and space—a rope that is firmly fixed but will seem almost infinite in scope. Children of the present age are interested in the future, the unknown, the unexplored, the undiscovered. The schools' handling of the past must match this scope for them. We have hardly begun to do so.

As we need new ways of placing children in time, so also we need new ways of placing them in space. At present if one asks an average group of Americans to complete the sentence: I am an American, not a ————, they will write in the word "foreigner." A world divided into Americans on the one hand and foreigners on the other is a world in which it is still possible to think of one country having to fight for its survival, and failing, taking the whole world with it into a holocaust.

Yet consider the revisions in the teaching of history and geography which will be necessary before children will answer: I am an American, not an inhabitant of Europe or Asia or Africa or Australia or the Islands of the Sea—or I am an American, not a Ghanian or a Burmese, an Australian or a Moroccan.

When any answer which is learned in school (or from TV and radio, film and press) places Americans under a single bright light and leaves the rest of the world gray and undifferentiated, just foreigners, we are failing to develop the kind of sense of ourselves in relation to the rest of the world which

will be necessary if we are to make our contribution to survival.

What is true of our geographical and national identity—the need to recognize ourselves as one among many—is also true of language and of culture. At present some teachers teach English as if English words were the names of objects established at the beginning of the world. So, when I was in the fourth grade we learned to sing:

When to the flowers so beautiful The Father gave a name,
Back came a little blue-eyed one, all timidly it came,
Dear Lord, the name thou gavest me alas I have forgot,
The Father gently smiled on it and said Forgetmenot.

We teach "this is a *book*," "this is a *pen*," and later "the French word for book is *livre*," "the French word for pen is *plume*," "the German word for book is *buch*," "the German word for pen is *feder*," etc. What we must learn how to teach is that the world is filled with identified objects, natural and artificial, and that each people, as they make them or meet them, have names for them, sometimes made up anew, sometimes borrowed from the names that other people give them.

We must be sure to teach that the object we call a book in English is called *livre* in French. And when we start teaching children to read, we must make clear that the ABC's are *our* alphabet, not *the* alphabet and that other people have different ways of writing down the words they use so that they can be remembered and read by others. Children can be shown a little about Egyptian hieroglyphics, Chinese characters, Arabic script, and a little about the earlier forms of our alphabet as it developed through history.

No special erudition is needed to do these things. A United Nations Christmas card will make the point. And so children can learn that our language, our script, and our culture are one among many, and that our way is not the *only* way to sit or eat, to vote or pray, to speak correctly or to write correctly.

THEN there is the problem of our place in the whole living world. If mankind fails to obtain permanent orderly mastery over the dangers which we have created for ourselves, not only will human beings suffer and possibly perish, but the whole of the natural world will be affected. The soil will be contaminated, plants will absorb materials like strontium 90, sterility and mutation will occur among animals as well as among men.

Stressing the importance of protecting our streams and fields and the waters of the sea, now being polluted with atomic wastes inadequately guarded and the wastes of cities carelessly pouring destruction into the surrounding air and waters, is one way of teaching a responsible vigilance for the life of the world. Children who learn something about the biosphere, that fragile web of life which has grown upon our planet, will be readier to place the human species as one species—never diversified as the other creatures are—within a world which required protection.

Against this background—of time stretching back through the development of life on the earth and forward to new kinds of life in space and in water, in a world where each nation has the safety of all other nations in its keeping—we can devise a new kind of education which will prepare our children to support and work for a world where the safety of each is the safety of all. # #

Teacher-Opinion Poll

Technological Advances

Do technological advances, such as teaching by television, offer real promise for improving the quality of education? Over half (53.8%) of America's public-school classroom teachers believe that they do. Only 28 per cent believe they do not. But 18 per cent are undecided.

This expected improvement, however, was based on the assumption that school classes be maintained at about their present size.

The question asked teachers was:

In your opinion, if school classes are maintained at about their present size, do technological advances such as teaching by TV hold real promise for improving the quality of education in the grade or subject you teach?

Opinions were as follows:

	Elem. teachers	*Sec. teachers*	*Total teachers*
Yes, considerable improvement	14.6%	17.1%	15.7%
Yes, some improvement	36.5	40.2	38.1
No, little if any improvement	29.2	27.4	28.4
Undecided	19.7	15.3	17.8

Teachers were much less optimistic about technological advances offering possibilities for increasing class size without a loss in quality of instruction. Slightly over 58 per cent said that little if any increase would be possible. Only 1 teacher in 5 believed such advances could facilitate larger classes without a loss in instructional quality. And 1 teacher in 5 was undecided.

The question posed to the teachers was:

In your opinion, do technological advances such as teaching by TV offer a realistic possibility for increasing the size of classes in the grade or subject you teach without a loss in quality of education?

The opinions were:

	Elem. teachers	*Sec. teachers*	*Total teachers*
Yes, considerable increase	3.7%	6.1%	4.7%
Yes, some increase	14.7	19.5	16.7
No, little if any increase	58.1	57.4	57.8
Undecided	23.5	17.0	20.8

—NEA RESEARCH DIVISION

What Did Congress Do?

NEA DIVISION OF FEDERAL RELATIONS

If educators were to compare what the First Session of the 87th Congress has done with what has been accomplished in the Congressional sessions of the past eight or nine years, they would have to give the current Congress a fairly good rating, despite lost causes and broken promises.

Every successful program of federal participation in education has been continued and in many instances improved by higher federal appropriations.

The National Defense Education Act was continued for two additional years and was provided with record-breaking appropriations. The impacted-areas programs, which channel federal funds of $286 million annually into thousands of school districts throughout the country, were also continued for two years.

The National Science Foundation was given $99 million more than last year, or a total of $263,250,000, of which "not less than" $37,600,000 must be used for supplementary training for secondary-school science and mathematics teachers. The school-lunch program was increased by $15 million.

The Treasury's revolving fund for loans to colleges for student and faculty housing construction was given a tremendous boost of $300 million a year for four years.

Some worthwhile new programs have been initiated: a program designed to encourage the training of teachers of the deaf, a new program of research and demonstration projects to combat juvenile delinquency, a program under the Area Redevelopment Act of 1961 to provide training in new skills for unemployed workers in depressed areas. The Peace Corps was established on a permanent basis.

If, however, educators were to compare the educational enactments of the First Session of this Congress with the proposals made to it by President Kennedy shortly after he took office, they would have to grade it below passing. For this was a Congress that enthusiastically applauded the President's comprehensive education proposals only to allow them to founder in the storms and crosscurrents of emotional side issues.

President Kennedy, in an unusual protest directed at a Congress he has repeatedly praised for its cooperation with his program, expressed his "extreme reluctance" at being "required to approve" the bill passed by Congress in the last weeks of the session extending for two years without change the National Defense Education Act of 1958 and the eleven-year-old programs of aid for federally impacted areas.

"The extension of the NDEA without the amendments submitted by this Administration," declared the statement issued by the President, "merely continues the current program, without urgently needed improvements, for two more years—years which are crucial to the training of more teachers and the strengthening of this nation's teaching of science, mathematics, foreign language, and other essential subjects. Particularly undesirable is the continuation of the discriminatory and ineffective non-Communist disclaimer affidavit. I hope the Congress can renew its consideration of these NDEA amendments next year, regardless of the new expiration date."

The statement continued: "Far more undesirable is the continuation for two more years of the current aid-to-impacted-areas program. . . . This administration recommended a reduction in the cost of this program, an increase in its eligibility requirements and local participation, its extension for only one year instead of two, and its eventual absorption in a general aid-to-education program. The rejection of all of these requests highlights the air of utter inconsistency which surrounds this program. . . .

"Communities which beseeched the federal government to maintain nearby installations, however uneconomical, now demand that the federal government rescue them from the fiscal burdens these installations allegedly create. . . . Individuals who profess opposition to federal aid to education on grounds of states' rights, racial or religious controversy, budgetary economy, or academic freedom do not hesitate to demand this federal aid to build schoolhouses and pay teachers' salaries in their own areas.

"I am not unmindful of the problems this program is designed to meet: But I believe that overcrowded and hazardous classrooms are undesirable anywhere. . . . *A quality education is a necessity for all American children, not merely those who by good fortune live in a district covered by this program.*"

The Kennedy statement concluded: "The need to improve the standards of education in this country will still be before the Congress next year; and that need must be met on a basis which, for every dollar spent, goes much further to attack our most critical deficiencies than the measure I am required to approve today." # #

16-PAGE FEATURE OF DIFFERING VIEWPOINTS ON

Carl Purcell Photo

Teaching Machines and Programed Learning

Glossary

auto-instruction (self-instruction). A comprehensive term denoting an instructional process that usually involves carefully planned materials and devices designed to produce learning without necessarily requiring additional human instructional assistance.

program. Subject matter arranged in a carefully planned series of sequential items and involving (a) controlled presentation of material, (b) active response of learner, (c) use of cues (prompts) to elicit correct responses, (d) immediate confirmation of success or failure (feedback), and (e) reinforcement of correct responses in such a way as to enable individual learners to move ahead, independently and at their own pace, from familiar background to new and previously determined terminal behavior. Programs may be presented in books, in loose-leaf binders, in special machines, and in other ways.

programed book (or text). A program presented in book form but radically unlike a workbook in construction and teaching purpose.

scrambled text (or book). A special type of programed book in which the program items are not presented to the student on sequential pages of the book. Usually, either in terms of alternate choices or of successes and/or failures, students are directed to pages which are not necessarily in consecutive order.

teaching machine (auto-instructional device). A mechanical device by which a program is displayed to a learner. It usually presents one frame (item) at a time, provides some method for the student to indicate an overt response, shows whether response is correct or not, prevents cheating by student, maintains a record of student responses; enables use of nonverbal programs, that is, programs which are either totally or in part presented in audio and/or visual form. # #

EUGENE GALANTER, professor of psychology, University of Pennsylvania, Philadelphia.

The Mechanization of Learning

PROGRAMED learning marks a renaissance in the method of dialectic teaching so brilliantly used by Socrates over 2000 years ago. This type of learning is available in several forms, but the teaching machine is probably the best known of the various types of mechanical devices that make use of programed materials. I shall describe where it came from, what it is, what it has been shown able to do, and what it may do in the future.

THE tale begins with the psychologist's efforts to understand how an organism adapts its behavior to its environment—that is, how an organism learns to cope with its culture.

In order to study this question, the psychologist had to learn how to teach. Now, to study teaching, one needs young, docile organisms that can be exposed to a variety of situations so that one may discover how these experiences affect them. The laboratory scientist could not use children for his experiments, so he settled for animals. Because he was dealing with lower animals, the psychologist cast about for methods of teaching that would work even on the mind of a brute beast. In the course of these studies that have extended over the past fifty years, a number of things were discovered.

First of all, the scientist found that he could not lecture to the animals because they did not understand his language. He could not tell them what to do. Even if he arranged for them to do something, there was no guarantee that the animals would repeat what they had done previously. That became the crucial issue: If an animal would do something once, how could one be sure that, when this same problem was presented again, the animal would do what it had done before?

The answer devolved on the empirical fact that if some event pleasing to the animal occurred after the animal had done what you wanted to teach him, then on future occasions it would again act in the way that had led to the valued outcome. In fact, once the animal did something, and had been "reinforced" for doing it by a pleasing outcome, it would act in the same way again with only occasional reinforcements.

Once the scientist discovered that by reinforcing what an animal had done one could make it repeat the action, the question arose: How many things could it learn in this way? It turned out that the animal could learn anything within its physical limits. It was found, however, that if too much time elapsed between the animal's behavior and the occurrence of the reinforcement, the effectiveness of the reinforcement was diminished. It was also found that each animal had to be dealt with individually by the scientist acting as tutor.

There was a strong parallel between the way the psychologist trained an animal to behave in a particular fashion and the way Socrates taught Meno's slave to solve a geometric theorem. Each time the slave came close to an appropriate remark, Socrates would say, "Yes, you are exactly right." And each time the psychologist's animal approximated an appropriate action, the psychologist would drop a pellet of food into the animal's food cup.

Scientists were too busy and ingenious to stand around waiting to reward an animal every time it performed the desired action, so they devised an arrangement that trips a lever every time the animal performs properly, and this lever actuates a device that delivers some reinforcement. Thus the psychologist can put his animal in the apparatus on Friday, have a pleasant week end, and return on Monday to see an animal with a new repertoire of behavior. Clearly, the animal has been educated by the machinery.

IT was an insight of Professor B. F. Skinner of Harvard University that if he could mechanize the training of an animal as inherently imbecilic as a white rat, then he should be able to do the same thing for the infinitely superior child. In the way of great men, he suited his action to his thought and devised a machine that would teach.

In principle, the machine operates like a magical book. Specifically, the book is so arranged that the child is unable to turn the page until the book has satisfied itself that the child already knows what is on the page he has just finished reading. The very fact that the page will turn has proved to be sufficient reward for learning what is on the preceding page. Added to this is the additional value that the child receives from being able to go ahead to the next item of information. That is to say, the successful solution of a problem is itself a powerful reward, and the discovery of new information enhances its reinforcing effect. The magical book and the child thus constitute a self-propelled device.

But what if the child makes a mistake or is confused? The results closely parallel what would happen in an animal experiment of the same kind. The child experiences frustration and feels emotionally upset. It is important, therefore to minimize, if not entirely eliminate, the possibility that the child will make an error.

Since the child makes errors whenever new behavior is required that is more than minutely different from the behavior that has previously been required, he must be led by a series of infinitesimal steps from one behavioral repertoire to the next. This means that the contents of the book or, as we shall call it, of the teaching machine, must be carefully divided into small, easily assimilated segments. This construction of a sequence of steps to amplify the child's initial behavior into an education constitutes what we call "programed learning." This is the very heart of the entire concept.

Preparing programed learning involves breaking down some complex area of knowledge into a finely graded sequence of component knowledges that can be mastered piecemeal with no errors along the way.

Teaching Machines and Programed Learning

A program like this is a work of art, and the artisans in this educational vineyard are still few and far between.

One of the great dangers in this entire field is the premature use of experimental materials that have not yet been thoroughly tested.

Now what exactly does that previous comment mean? Why shouldn't it be possible to put the programs we now have to immediate use? The point is that the student himself is the only one who can design the program. A program for machine teaching cannot be written out *a priori;* it must be constructed with the constant interaction of the learner and the program writer.

The editor of a program is the student himself. If he has difficulties with the program material, there is something wrong with the program, not with the child. And this construction, as I am sure you can appreciate, takes time. Each segment of a machine program must be tried out and revised in the light of errors the children make until eventually a program exists through which any child can proceed at his own pace with no errors.

Another important feature of programed learning is that the child, working with his own machine or other device that contains a program at his own level, proceeds independently. Each machine reacts to the child as a private tutor would, advancing him quickly when he knows the material, and moving as slowly as

The many different kinds of teaching machines range in complexity from the simple mechanical type shown on the cover to highly complex electronic types using microfilm and movies, such as the model shown below.
Western Design and Electronics, Division of U.S. Industries, Inc.

is necessary when the child must struggle with the ideas.

The machine has other advantages, too. It is just—rewarding only when the child is right. It never scolds or gets angry at the child who is having difficulty. It is imperturbable and benign. It is wise (if the programer is wise) and though it speaks softly, its accumulated knowledge is great. Whenever people hear these qualities stated without knowing that the possessor is a machine, they remark, "These are the ideal attributes of a good teacher."

But someone will say, "What of the cost? How can we possibly afford what must obviously be a complicated device for each child in the school system?"

Actually, the machines themselves are fundamentally irrelevant to the program material. Any type of machine that presents the program and provides an opportunity for the child to answer back is adequate. Such machines can be built for less than fifty dollars, and it hardly need be said that the machines will not use all the child's time. My own view in this matter is that in the beginning, when program material is scarce, teaching machines will use no more than one-fifth of the child's time. As programs increase, the total amount of the child's time spent with the teaching machine will amount to about one-third, which means that one machine is needed for every three to five children.

The cost of the program material is something else again. In one estimate that I made recently, I calculated that the production of the manuscript for a single program for one semester of elementary arithmetic would amount to about $50,000.

THE advantages of teaching machines and other types of programed learning have so far been implicit in what I have had to say. In general, the teaching machine has all of the advantages of the private tutor. In addition, there is an increase in the over-all time efficiency of the learning process that, in the studies so far available, suggest a factor of about three to one. That is to say, we should be able to cover three times the current material. The other major advantage is that the teaching machine frees the teacher for those creative and uniquely human tasks that only the teacher can perform.

Thus, the drudgery of drill, the manipulation of flash cards, the grading of homework exercises, the incessant repetition during recitation become things of the past for the teacher. The child comes to the teacher with a fund of knowledge that can be discussed and amplified without the need for the teacher first to impart the skill. Large issues and values will find time in the curriculum without threatening to make the student incompetent in the basic skills.

A rash of questions of course remain unanswered. What of the dull child? What of the bright child? What of the stereotyped nature of the learning? Won't all of the children turn into a long, long line of robots?

None of these questions can be answered. We have no information yet. But we can certainly conjecture. In my own experiences, the bright and the dull children seem to have little difficulty with the same program. The bright children take about one third as long to get through the program material as the dull, which gives them time for additional work. Both the bright and the dull are able to solve the problems the program was designed to teach. But the bright, it seems to me, are able to generalize further from what they have learned, and therefore maintain their superiority over the dull.

The program does not turn them both into mediocre students. In general, it appears that the dull child advances more than the bright and so the absolute distribution of the class moves upward, and the variation in the distribution becomes smaller.

I have never seen any of the bright children bored by any teaching machine programs, although I have heard stories that this is the case. It just seems to be a fact that you don't get bored when you are continuously being successful. The children maintain their own independence after having been through a program. They apply what they have learned in the variety of ways that we would expect as a result of the variety of interests and personalities that the child brings to the situation.

The only effect that the teaching machines seem to have on the children is to enlarge their vision. In addition, the machines have the advantage of returning to the child the opportunity for private and independent study—a feature that is rapidly disappearing from educational systems. The child is given an opportunity to work independently and in this way to recognize the fruits of his own labors without the necessity for constant and potentially invidious comparisons between him and his fellow students. What the long-range social consequences of this change will be is hard to anticipate, but by no stretch of the imagination can I construe it as having bad effects.

A teaching machine makes the recognition of talent simple and obvious. The child who races through the available programed materials and waits hungrily for new information is revealed to you very quickly.

THE limitations of machine teaching have not yet been revealed to us. We have only scratched the surface, and the potentialities of the machine seem unlimited. This optimism is, I am sure, a transient matter. We are bound to run into snags, snares, and pitfalls. But at the moment, these are hard to anticipate. When they occur, we shall have to face them and revise what we are doing. But presently, the major limitation seems to be one of program material.

Writing a program is quite an interesting experience. It forces us to reconsider all of the time-worn topics of curriculum structure and skill sequencing. Every teacher of mathematics or arithmetic is convinced that he knows the correct order in which arithmetical ideas should be presented, but it turns out, of course, that only the child really knows. And with a teaching machine program, children involved

in the program pretesting actually determine the appropriate order in which material is to be presented.

Questions like "When should a child be taught the ideas of measurement?" are no longer relevant. The construction of a teaching machine program in arithmetic imposes upon the programer the necessity for introducing measurement ideas when the child's own development makes the demand.

Just as the problem of sequencing within a particular subject matter becomes an empirical issue with programed learning, so the problem of curriculum development and curriculum structure becomes an empirical question in the same context. How these side effects of teaching machines will act on the educational system remains to be seen. But act they will. And we must be prepared, not for the introduction of a new device into the educational field, but for the introduction of a totally new method of teaching.

Whatever its drawback, and there must be many, this method is one step toward assuring our children that they will be prepared to survive in the severe competition of tomorrow. # #

♦ *This article is a special adaptation for* THE JOURNAL *of a speech made at a meeting of the National Association of Secondary-School Principals, NEA. The speech was later carried in the* NASSP Bulletin.

Joint Committee Statement

A Statement on Self-Instructional Materials and Devices by a Joint Committee of the American Educational Research Association (NEA), the Department of Audiovisual Instruction (NEA), and the American Psychological Association.

THE use of self-instructional programed learning materials in teaching machines and similar devices represents a potential contribution of great importance to American education. But this contribution can be realized best only if users have information with which to evaluate self-instructional materials. Accordingly, the following interim guidelines have been prepared:

1. Teaching machines do not, in themselves, teach. Rather, the teaching is done by a program of instructional materials presented by the teaching machine. Any evaluation of a teaching machine thus requires an assessment of the availability and quality of programs for each type of machine, as well as its mechanical dependability.

2. A variety of programed materials is becoming available, but not all programs will fit all machines. Thus only those programs compatible with a particular machine can be considered as available for use with it. A list of commercially available programs and devices was printed in the April 1961 issue of *Audiovisual Instruction*. Extra copies are available from the Department of Audiovisual Instruction, NEA, 1201 Sixteenth Street, N. W., Washington 6, D. C. (50¢.)

3. In evaluating the specific content which a self-instructional program purports to teach, the program can be examined to determine what the student is required to do and whether this reflects the kind of competence which the educator wishes to achieve. Like other educational materials, programs labeled with the name of a particular subject matter vary widely with respect to content and instructional objectives.

4. Just any set of question and answer material does not constitute a self-instructional program. One type of self-instructional material proceeds by small steps requiring frequent student responses. These steps can be examined to see if they embody a careful, logical progression of the subject matter. Items in such a program are designed so that the student will respond to the critical aspects of each item or will perform the important operation which that item was meant to teach. Furthermore, such programs generally provide a wide range of examples illustrating each principle or concept.

5. Self-instructional materials are designed to adapt to individual differences by allowing each student to proceed at his own rate. Some types of self-instructional programs further adapt by "branching" to alternate material. For this purpose, questions are designed to diagnose the student's needs and to provide alternate material suited to these needs. The material is designed so that the choice of answer to a particular question determines which items will be presented next. Incorrect answers take the student to items containing information designed to correct the error before continuing through the sequence.

6. An important feature of almost all self-instructional materials is the record of the student's responses which provides a basis for revising the program. The prospective purchaser should ask about the extent to which revision has been based on student response and how the preliminary tryout was conducted.

7. The effectiveness of a self-instructional program can be assessed by finding out what students actually learn and remember from the program. The prospective purchaser should find out whether such data are available and for what kinds of students and under what conditions the data were obtained.

8. Active experimentation with self-instructional materials and devices in school systems is to be encouraged prior to large scale adoption. # #

ERNEST R. HILGARD, professor of psychology and education, Stanford University, California.

What Support from the Psychology of Learning?

And how is the teacher's job changed?

PROGRAMED learning has come upon the scene very rapidly and brought with it both the possibility of a radically different (and, hopefully, successful) method of instruction and the possibility of providing a new look at the process of learning itself. It derives support from established principles in the psychology of learning, six of which I shall mention here.

1. Programed learning recognizes ***individual differences*** by beginning where the learner is and by permitting him to proceed at his own pace. It is possible that programed learning may succeed in reducing individual differences because of these features.

2. Programed learning requires that the learner be ***active.*** Learning by doing is an old educational slogan, and it is still a good one. The teaching machine (or program in other form) fights the tendency for the pupil to be passive and inattentive by requiring his participation if the lesson is to move.

3. Programed learning provides immediate ***knowledge of results.*** Whether because it provides reinforcement, reward, or cognitive feedback, there is abundant testimony that knowledge of results is important in learning. It favors learning the right thing; it prevents repeating and fixating the wrong answers.

4. Programed learning emphasizes the ***organized nature of knowledge*** because it requires continuity between the easier (earlier) concepts and the harder (later) ones. Again, all learning theories have some place for meaningfulness, for understandable relationships, for assimilating the new to the familiar. The program builder cannot be as arbitrary about content as the ordinary laboratory student of learning (with his multiple-unit mazes or nonsense lists of varying lengths); the programer has to make one step fit the next and provide the hint or cue for the next. He has to examine the subject matter very carefully in order to find out what has to be known before something else can be learned, and he eliminates side issues that do not lead to cumulative learning.

5. Programed learning provides ***spaced review*** in order to guarantee the high order of success that has become a standard requirement of good programs. Review with application, if properly arranged, permits a high order of learning on the first run through a program. While there is no rule against going through a program a second time if there have been many errors, the aim is to produce essentially errorless learning the first time around.

6. Programed learning reduces anxiety because the learner is not threatened by the task: He ***knows*** that he can learn and is learning, and gains the satisfaction that this knowledge brings. Lest this seem to be a trivial observation, we need only to be reminded that many children have been so frustrated by school learning tasks that they have never had the satisfaction of coming up to expectations; we have no way of knowing the costs we have had to pay for this accumulated frustration.

Having said this much in favor of the teaching machine and programed learning in relation to what we know about learning, let me say that a general principle of learning can never be tagged to a practical procedure as a validation of that procedure; the validation comes in other ways. Thus any successful instructional device must accord with learning principles, or there is something wrong with those principles. Psychological principles do not tell us just what to do in practice; that is why we need educational as well as psychological research.

LET me turn now to the teacher's role in the midst of the new technology. If through teaching machines and programed instruction we free the teacher of the drudgery of straightforward instruction in the imparting of information and questioning about facts, computations, and the like, the teacher will then have time to do the things that he can do better than any machine.

The hope, as I see it, is not that the machine will relieve the teacher shortage, but that it will relieve teacher fatigue, permitting the teacher to devote himself to the essential task of inspiring, stimulating, and encouraging students to feel a sense of their own significance in the scheme of things, to see themselves as

creative individuals who can set tasks for themselves and can achieve at a level that will increase their self-respect and give them a favorable self-image. The teaching machine will help, so far as the student's competency in routine achievement is concerned, but the teacher will still have many opportunities for recognizing and rewarding individuality, initiative, and creativity.

LET us spell this out a little more clearly:

Let us agree first that you cannot think at a high level unless you have some facts to think about and unless you have some tools by which to manipulate concepts. At the same time, no person can store in his head the kinds of facts he needs to think about all sorts of complex problems, so even at the factual level he needs to learn how to find facts.

Thus the dictionary habit, the encyclopedia habit, and the library-catalog habit are fully as important as memorized facts. While a teaching machine can give some of these facts, the search for facts is not a sedentary habit; no matter how well-organized a library, you have to walk around a little to use the reference works. This is then a task that the teacher is needed for: to teach the student how to search out the facts he needs to know for a given purpose.

Let us also agree that in a changing world we cannot teach formulas by which to solve problems; we have to prepare the pupil for new situations by teaching more general aspects of problem solving. The puzzle-form of problem (where there is one right answer to discover) can easily be taught by the teaching machine, but the full-scale problem is harder to teach. The feature that impresses me most about really good problem solvers (and I include research scientists among these) is their capacity to see a problem where others do not see one or to define a manageable problem in the midst of a situation so complex that others feel merely baffled.

A good teacher can help pupils to discover problems for themselves and to have the satisfaction of working out answers to problems they discover or set for themselves. The real yield in transfer of

"Class, does anyone need any help?"

learning necessarily comes in the kinds of problem-solving skills that are content indifferent; that is, that will permit the attack on a problem regardless of what the content of the problem is.

In addition to teaching the search for facts, and problem solving in general, we also wish to teach creativity. Guilford makes a useful distinction between convergent thinking and divergent thinking. Convergent thinking is that which focuses down to a precise answer, as in puzzle solving. You surround the problem, so to speak, and then marshal your forces for an attack at its heart. In divergent thinking, you work in the opposite way: Starting with a familiar topic or idea, you let it flower and grow in novel and interesting ways, and thus create something new. Several creative people given the same starting point will end up at very different places. Hence the process is divergent rather than convergent.

How can we teach the kind of flexibility that yields creative divergent thinking? The answer is that it must be encouraged, rewarded, just as anything else is that we try to teach. Taking a cue from the teaching machine, if you will, I favor the encouragement of small evidences of creativity.

Here is where a skilled teacher comes in. He can encourage a pupil to take pride in his own creative efforts even though they are very limited by external standards. A small tune invented on the piano, a limerick (instead of a sonnet), a string tied to the key of an alarm clock that turns on the radio instead of sounding the alarm—it does not matter how trivial the invention may be. If it gives the individual the sense that he can create something, he learns to see himself as potentially creating something more.

The last aspect of teaching that I wish to point to is the group process of living with diversity, of discovering compromises that permit community life to go on, of seeing individual behavior in terms of its consequences for others, of developing a sense of responsibility. There is no way to learn this but to participate responsibly in group processes. Here is clearly an area where the teacher cannot be replaced. Any group activity—especially one that involves planning, division of labor, moderating conflicting value systems, taking of responsibility, cooperating and competing—is significant for the teaching of social process.

BY relieving the teacher of much that is routine, the teaching machine and program permit these other opportunities greater play. If much of the *science* of teaching is taken over by the machine, the *art* of teaching will again come into its own, residing where it should, in the teacher as a person. # #

SUSAN B. RILEY, professor of English, George Peabody College for Teachers, Nashville, Tennessee. She has also taught in the elementary grades and in junior and senior high school.

Mr. Gradgrind and Girl Number Twenty

I WISH to reaffirm the vital importance of the teacher even in an age which of necessity has taken on a technological character.

As far as I know, in the long history of literature the thesis that there is no substitute for the gifted teacher has never been disputed. The relative importance of certain areas of teaching, of preparation and personal qualifications of teachers themselves, and of pedagogical principles and methods have persistently been debated and should continue to be in order to bring about the processes of change which are marks of a living body. But what a gifted teacher can do in stimulating a desire for learning and focusing that learning on the right objectives has been pretty generally agreed upon for centuries.

I propose, accordingly, to act as a reminder of those things which you yourselves do know and to restate three influences an inspired teacher can have on the minds and spirits of students which cannot be wrought through any other means.

And that brings us to Mr. Gradgrind in *Hard Times.*

Thomas Gradgrind, according to Dickens, was "a man who proceeded upon the principle that two and two are four, and nothing over, and who was not to be talked into allowing for anything over."

"Now, what I want is Facts," he told Mr. M'Choakumchild, a teacher in his model school. "Teach these boys and girls nothing but Facts. Plant nothing else and root out everything else. You can only form the minds of reasoning animals upon Facts; nothing else will ever be of any service to them."

To illustrate what he meant, he took over the teaching of the lesson himself, calling upon girl number twenty to define a horse. Alarmed by this demand, she said nothing, whereupon Mr. Gradgrind announced to the class: "Girl number twenty possessed of no facts, in reference to one of the commonest animals. Some boy's definition of a horse. Bitzer, yours."

Replied Bitzer: "Quadruped, Graminivorous. Forty teeth, namely twenty-four grinders, four eye-teeth, and twelve incisive. Sheds coat in the spring; in marshy countries, sheds hoofs, too. Hoofs hard, but requiring to be shod with iron." Thus and much more from Bitzer.

"Now, girl number twenty," said Mr. Gradgrind, "you know what a horse is."

Actually she, Sissy Jupe by name, knew a great deal about horses, since her father worked in a circus, and in her short life she had met more horses than she had Mr. Gradgrinds. Furthermore, she possessed an active imagination, which made it possible for her to identify herself with situations outside her experience and to understand many things she did not in her little brain comprehend.

Dickens expected his readers to recognize that some of his characters are preposterous caricatures. Even when his pictures of educational situations are distorted, however, at the center is a clear, true image of some current practice which he thought harmful to the minds and spirits of children. In this case, he is satirizing the mechanical nature of the training given children to the detriment of their imagination, turning them (as he said in a speech in 1857) into "little parrots and small calculating machines."

THE point of debate for our own times is not the relatively simple one of whether teaching is done by human beings or by automated devices. It is rather whether the method which consists of question and standardized response, whether practiced by Mr. Gradgrind or his modern mechanical prototype, can elicit from the student full understanding and appreciation of an area of learning.

Alfred North Whitehead in his *The Aims of Education* made a vigorous statement on this point:

"So far as the mere imparting of information is concerned," he said, "no university has had any justification for existence since the popularization of printing in the fifteenth century. . . . The justification for a university is that it preserves the connection between knowledge and the zest of life, by uniting the young and the old in the imaginative consideration of learning." In his opinion, "the whole art in the organization of a university is the provision of a faculty whose learning is lighted up with imagination."

What then could imagination possibly add to give us a better understanding of a horse than scientific observation does? Just as true as the fact that the horse has forty teeth is the fact that men have always

admired the strength and beauty of horses and have shown their admiration through a symbolic use of them in art. This we know from drawings on the walls of the Lascaux Cave and the Etruscan tombs and the pictorial representations of horses found on smooth sides of cliffs in Africa and our own Southwest. That men have responded to the movement of horses we can feel in such poems as "The Highwayman" and "The Charge of the Light Brigade" and in such musical compositions as the overture to *William Tell.*

To the imaginative mind, a nonfact is often nearer to the truth than a literal statement.

Mr. Gradgrind belonged to the school of the fixed answer. No age can afford the ease of the absolute, certainly not ours with its complexity of problems. It was the founder of the University of Virginia who said that a university should be based upon "the illimitable freedom of the human mind, for here we are not afraid to follow truth wherever it may lead, nor to tolerate any error as long as reason is left free to combat it." This freedom, through encouraging challenge and debate, develops a critical temper among the students. But it flourishes only in an atmosphere which is fluid and imaginative, not in the mechanized climate of the fixed response.

Freedom to explore the full range of possible answers to any problem is also a safeguard against what Archibald MacLeish has called "the dogma of inevitability" which denies us the purposeful exercise of the will.

Somewhere in our scheme of instruction there should be a time to speak out boldly against the fallacy that there is no autonomy of the individual and that he is, accordingly, excused from the discipline of informing himself and from the hard responsibility of making reasoned and moral choices.

ANOTHER service to the questing spirit of students which the agency of instruction (whatever form it may take) should give is what for the moment I shall call a sense of elevation. The line from the Psalms, "I will lift mine eyes unto the hills from whence cometh my help," symbolizes the fact that man attaches spiritual significance to physical heights.

The twin thrust of the towers at Chartres and the soaring of the single spire of the Salisbury Cathedral have brought an accompanying lift to the spirits of countless people for centuries. Man needs to be constantly reminded to raise his eyes lest he become earth-bound. That is particularly true today when the Age of the Common Man threatens to become the Age of the Commonplace.

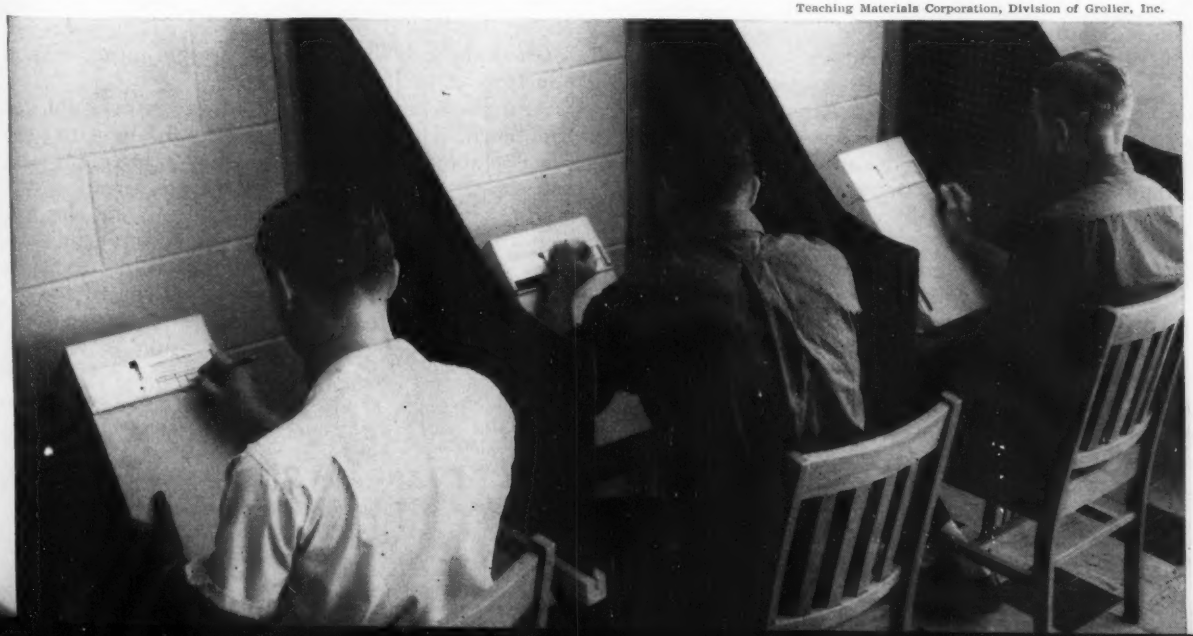
"Leveling down's the fashion now," said William Alexander Percy in *Lanterns on the Levee,* "but I remember the bright spires—they caught the light first and held it longest." The teacher can himself be a bright spire; he can also be an image maker, keeping before his students constantly a view of the excellent.

Sir Richard Livingstone, in a visit to this country in 1951, put first in the essentials of education knowing "the first-rate" and realizing that "a worthy purpose in life is the desire for excellence." An education is incomplete if its holder is "taken in by second-rate, shoddy stuff." One learns what is best, however, only through meeting it, and in Sir Richard's opinion what is truly excellent is most exactly and convincingly recorded in those activities which spring from the creative and intellectual faculties—literature, art, music, and architecture.

From my experiences as a teacher of literature, I know that the development of a critical sense, the illumination of literature as an art form and as a

Although teaching machines are appearing on students' desks in many parts of the country, some schools are setting up teaching-machine areas, in which students can study in semi-private booths.

Teaching Materials Corporation, Division of Grolier, Inc.



revelation of men and their ways, is a delicate and sensitive process. That it will take place in the minds of the students on any given day as they sit in a class, listening and reading, can never be guaranteed. If the "shock of recognition," as John Ciardi calls it, does take place, for a brief moment at least the student transcends himself and the limitations of being a man. He builds his own cathedral spire reaching above the plains of his life.

Achieving these moments of illumination calls not for an impersonal atmosphere but a personal one in which the mind of the teacher and the mind of the student can shift and veer to meet the other.

ALEXANDER Meiklejohn, in his inaugural address as president of Amherst, reminded his audience that the old classical curriculum was founded by men who took the available content of human knowledge and

A Fable of the 80's

As Miss Bell sank into her chair, she was thinking about what a hard day it had been. Two of the teaching machines had blown fuses during the afternoon; the electronic computer apparently had developed a defective transistor; and one of the TV sets had developed an embarrassing habit of picking up cowboy shows.

But the children were gone for the day, and she indulged herself in a bit of reminiscing—especially about those quaint, uncluttered 60's, now two decades past. As a beginning teacher, she recalled, she had to teach the children herself, with the help of books, films, and other such archaic gear.

Then came the new machinery!

First, there were the TV sets. The children were thrilled at this, since all of them had loved their home sets. But this was different. When TV watching could be indulged in without parental objection—and especially when it was done at school in the name of learning—it somehow lost its appeal. Further, the health authorities pointed out that the children were becoming sedentary and overweight, and were acquiring glassy-eyed stares. So now the TV sets were used only about an hour a day, mainly to study the life histories of moles and earthworms. (The children were *so* tired of space travel.)

Then the teaching machines arrived, and her chief responsibility had become that of keeping the machine assignments and the programing straight. The children pulled levers or pushed buttons and somehow became "educated." She had encountered trouble in trying to teach such things as appreciation—but later she got an appreciation machine, which eliminated that problem. It still bothered her a bit that back in the 60's teachers were concerned about things like developing character. But she was already receiving advertising matter about a character machine. She should have one by next year. Of course, nobody bothered now to work on getting along with people, since getting along with machines had become so much more important.

She recalled that back in the 60's many students had trouble with arithmetic, but the UNIVAC in the corner had eliminated that field entirely. Reading, too, had given trouble, but the reading machine had taken care of that. (This machine read the microfilm to the student through headphones; the only demand on the student was that he shift the film.) The monthly report machine, later improved so that it also called the roll, had been a great help. And the report-card machine, with the tape-recorded answers to parents' questions, had been a real boon.

OF course, she reminded herself, the great changes had also created some problems. For example, her first course in the operation and repair of the machines had been most difficult. And many of the direction booklets had been confusing. Eventually however, she had prevailed upon the PTA (Parent-Technicians Association) to get her a direction-booklet machine. That must have been sometime in the 70's—along about the time the superintendent was replaced by an industrial engineer and the school board had given way to a committee of efficiency experts.

Gradually, Miss Bell became conscious of the fact that several things had to be done before her work day was over—master switches turned off, instruments covered, and some simple repairs made to the lost-child machine. She must get it repaired in order to look into the prolonged absence of the red-haired boy who used machine number 14. (She had long since given up the task of learning their names, since the machines made this unnecessary.) Then she must rush home to prepare for night school. She was studying about the "dodo bird" period in education, when teachers thought of children as people rather than as operators of machines.

As she was putting on her coat, the tasks of the day completed, Miss Bell found herself thinking with some concern about one of her students—a little girl who had shown an unusual degree of attachment to the new teaching machine. Several times lately she had seen the youngster holding lovingly onto the machine's handle or gazing with adoration into the pilot light. Just that afternoon, she had overheard the departing child say to her mother, "Mommy, you know what I wanna be when I grow up? A teaching machine!" # #

—SAM ADAMS, *associate professor of education, Louisiana State University, Baton Rouge.*

wrought it together into a coherent whole. They established relationships among the separate judgments of science, philosophy, history, and the arts, freed them from contradictions and ambiguities, and produced a knowledge of human experience by which they could live and which they could teach to others engaged in the activities of living.

But with the invention of methods of scientific investigation and discovery, there came pouring into the mind of Europe great masses of new material, such as astronomy, physics, and chemistry, which could not at first be related to the old interpretations. The old and new stood facing each other with no common ground of understanding.

The task of leaders of European thought, especially of the eighteenth and nineteenth centuries—men like Spinoza, Kant, and Hegel—was to discover relationships between these apparently hostile bodies of knowledge. To a large degree the task was accomplished. But the proliferation in man's knowledge continues so that the separate disciplines stand side by side with no intelligible connections, no establishment of interrelationships which would bring all knowledge to bear on the central fact of the meaning of man's life and his successful meeting of it.

If this was true in 1912, when President Meiklejohn made these comments, how much more is it so today with its continued proliferation and increasing complexity. What is sorely needed is not so much scattered observations on the world but a unified understanding of it. Ultimately this is the task of the philosopher. But on the more immediate and popular levels, to show interrelationships among the areas of knowledge and to focus them on the making of a pattern for a satisfying life is the function of a real teacher.

This objective of education is what Cardinal Newman must have had in mind when he defined a liberally educated man as one "whose intellect has been disciplined to the perfection of its powers, which knows, and thinks while it knows, which has learned to leaven the dense mass of facts with the elastic force of reason."

This essential of education which I am trying to make clear might be described more simply as the ability to think. "Man is but a reed," said Pascal, "the most feeble thing in nature, but he is a thinking reed. . . . All our dignity, then, consists of thought. By it we must elevate ourselves, and not by space and time which we cannot fill. . . . By space the universe encompasses and swallows me up like an atom; by thought I comprehend the world."

People have the right to expect as a legacy from their years in school not only facts and skills but intellectual clarity and the habit of thinking candidly and intrepidly about fundamental issues, bringing to bear on this process an awareness of the interrelationships of all areas of knowledge.

To sum it up: As the science of learning advances, the art of teaching must not be forgotten. This art deals with such aspects of a desirable education as

Teaching Machines and Programed Learning

encouragement of the imaginative faculties, awareness of and love for the excellent, and wisdom based on a mastery of the interrelationships of all knowledge.

"We all had better grieve," said William Faulkner at the Nobel exercises in Stockholm, "for all people beneath a culture which holds any machine superior to any man."

Someone has defined automation, in its simplest terms, as the use of machines to run machines. The danger to society is not in using automation for learning, but in becoming contented with an automatic type of thinking. For machines do not have emotions, volitions, and aspirations. They do not take fanciful excursions into new fields prompted by a fleeting expression on some student's face. They do not have the power of discrimination or origination. They are constructed to respond to the pressure of centralization and of adjustment to a mass average.

Peter Viereck, the poet-historian, speaks of "the fight for the inner dimension against outer mechanization." Without the understanding of man's inner nature which comes to us from the nonfact world of art and literature, and the inner restraint which comes to us through religion, says Mr. Viereck, "our outer practical and mechanical progress is paving our road to hell with good inventions."

Only when the importance of this inner dimension is recognized and is given full room for expansion and expression can we be sure that girl number twenty is getting the kind of teaching she is entitled to. # #

♦ *This article is a special adaptation for* THE JOURNAL *of a speech made at a meeting of the American Association of Colleges for Teacher Education, NEA. The speech was later carried in the* AACTE Yearbook.

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What Should an Administrator's Attitude Be?

FORREST E. CONNER, superintendent, St. Paul, Minnesota public schools, and immediate past president of the American Association of School Administrators.

TEACHING machines and programed learning are just two of the more recent additions to a long list of educational tools—tools that are swiftly growing in numbers, variety, and complexity. Teaching tapes, records, overhead projectors, television, language laboratories, and other mechanical devices are used in classrooms; but the role that these tools play in the ultimate process of instruction has not in all cases been determined.

Equipment makers, lay writers, program publishers, and a host of "experts" have a great deal to say about programed learning and teaching machines. Articles concerning these technological developments can be found in nearly every educational periodical and in many of the popular magazines. Advertisements and salesmen proclaim the value of these so-called automated tutors. Some people exult that here is the cure for most educational shortcomings, while others gloomily predict that students will be turned into fact-recording robots.

It cannot yet be said, however, that the effectiveness or ineffectiveness of the teaching machines has been fully demonstrated. At present, there is no standard means of testing programed learning. The results of standardized tests are not enough. Laboratory reports from research engineers and experiments designed by psychologists are helpful, but we also need to obtain additional objectively arrived at information from competent teachers.

Until such evidence is available in larger quantities than at present, Philip Rothman of Antioch College has suggested that considering the results obtained from similar educational tools may provide some indication of what can be expected from the use of teaching machines and other types of programed learning. He points out that workbooks, for example, were supposed to provide some of the benefits attributed to programed learning. They were claimed to be a means to individualize the work of each student, to make possible different rates of progress, to avoid having students overdependent on the teacher, to organize learning into expertly devised and tested sequences, and to free the teacher for more creative and imaginative activities.

Though it may be argued that workbooks and these new devices are not the same, Dr. Rothman feels that the basic promises and aims are too similar to be ignored. Workbooks did not reduce the cost of education or replace the classroom teacher. The success or failure of this tool depended on the ability of the teacher to make use of it for particular learning tasks. In some cases, workbooks served to individualize learning and provide greater diversity; in others they served only to keep pupils busy.

TEACHING machines and programed learning, like other educational tools, undoubtedly have contributions to make to the content and quality of instruction, but they also have limitations that must be taken into account.

Teaching machines have been advertised as automated tutors and proclaimed as the modern version of Mark Hopkins and the log. Though the same question-and-answer method of presenting facts is used by both tutors and teaching machines, the machine, in spite of so-called feedback and branching features, is limited. It cannot ask more questions or help the students learn more than that which is programed. Students work individually and can proceed at their own rate, but the material is limited and the answers to questions must be the exact ones requested. This might be satisfactory for learning certain factual material, but it does not provide an opportunity for students to ask their own questions and develop their own answers. Let's not forget that education must prepare the individual to investigate for himself.

Programing has been compared to a refined lesson plan in that both attempt to present the material to be learned in such a way as to take advantage of all that is known about the laws of learning. However, lesson plans have the advantage of being able to adjust to the local situation and to be altered suddenly to take advantage of the flight into space of an astronaut or the birth of a new nation in Africa.

There are those who speculate that in this era of man and machines the teachers may become largely unnecessary. Others say that the good teacher will be more indispensable than ever. Teachers were not displaced by books, motion pictures, or television nor are teaching machines likely to lead a class discussion or provide the motivation of an inspiring teacher. Machines cannot replace a teacher who understands children.

Perhaps teaching machines and programed books will ultimately do better than teachers at transmitting

factual knowledge, but they are useless for the larger task of educating the whole child.

It is evident that the school administrator needs to study teaching machines and programed learning thoroughly before making recommendations concerning them. In making his evaluation, he must take into account the basic objectives of free education in America. Providing the opportunity for a good education to all of the children of all of the people is an accepted goal. School administrators must therefore evaluate teaching machines and programed learning in terms of whether they will help students to develop their individual potentialities. They must decide whether or not these tools will be of help in attaining basic educational goals.

Experienced administrators are not likely to indulge in impulse buying as a result of the sheer quantity of articles and the pressures to try something that is new and spectacular. They must be careful, however, to avoid attaching either too much or too little importance to new technical devices.

They must also be careful that, in substituting some new device, they do not discard, to their sorrow, something which has produced excellent results over the years and which will still be good in the educational process in the years to come. They must not only assess the value and importance to education of modern educational hardware but must also consider the value and importance of person-to-person contacts between teacher and pupil in the classroom. Certainly, no teacher should do that which a machine can do better. On the other hand, machines should not be substituted in situations where the enthusiasm and inspiration of a skilled teacher produce high motivation and desirable attitudes as well as skills and factual learning.

Anna Hyer, executive secretary of NEA's Department of Audiovisual Instruction, believes that the attitude of the administrator toward teaching machines and other types of programed learning is a critical factor in determining if and to what extent they will be used. According to Dr. Hyer, the administrator's attitude need not necessarily even be spoken to have a pronounced effect on classroom use.

An administrator can find clues to his feelings toward these media by answering the following questions adapted from a series prepared by Dr. Hyer:

Teaching Machines and Programed Learning

1. Am I aware of and open-minded about these technical developments?

An administrator should not be for or against them or the methods used to present them. He needs to be informed about them and to study the results of their use. He can well ask himself what he is doing to encourage experimentation that will help determine their role in solving educational problems.

2. Am I concerned about preparing teachers to use these mechanical teaching aids?

Surveys made recently by the NEA indicated that many teachers felt inadequate in the use of audiovisual materials. Schools that purchase new tools need to provide in-service training in their use.

3. Am I prepared to provide the leadership necessary?

If an administrator believes that teaching machines and similar media have a significant role in achieving curriculum goals, he will hire a professionally trained supervisor to investigate carefully each new tool that is introduced.

4. Am I prepared to provide adequate financial support for the program?

Once the decision has been made to purchase teaching machines or employ programed learning, an adequate budget must be provided so that the necessary materials are available. Enough machines and an adequate supply of programed materials that are kept current must be in the right place at the right time. Every indication is that these new devices, like the other factors in a modern educational program, will cost money—lots of money.

5. To what extent shall I set up means to evaluate the effectiveness of programed learning?

The important information to be gained is what teaching machines and programed learning are contributing to educational goals. Like all other parts of the educational program, they should continually be evaluated to determine the role they are playing in helping students attain educational goals. # #

NEA Technological Development Project

The NEA Technological Development Project, begun in the fall of 1960, was created to study the host of technological developments affecting (or about to affect) education. These developments include teaching machines, educational television, language laboratories, new experiments in learning, and new patterns of school building, organization, and methods. The project is studying all of these developments (and others further in the future) as they impinge on the process of instruction, the educational enterprise as a whole, and the teaching profession.

James D. Finn is principal investigator of the project; Lee E. Campion is associate investigator. The project is funded, for the most part, by the U.S. Office of Education with a contract awarded under the provisions of Title VII (B) of the National Defense Education Act.

P. KENNETH KOMOSKI, president, Center for Programed Instruction Inc., New York City.

What Are the Schools Doing?

SUPPLYING educators with anything like a complete picture of current developments in the rapidly changing field of programed instruction is probably an impossible task. Certainly it would be impossible to give an accurate and detailed description of the frenzied activity which is going on among the many teaching-machine manufacturers and publishers who represent the field's commercial side. The thoughtful educator, while on the lookout for significant developments from this highly energetic side of the picture, is more likely to find the kind of information he needs by examining what other professionals are doing with this new instructional technique.

What follows then is merely a report on *some* of the important activity in this field being carried on in schools around the country. This activity has to do with four interdependent facets of programed instruction: development, utilization, evaluation, and research. And the thesis which clearly runs through this report is that *without local direction by educators who have taken the trouble to become intimately acquainted with each of these four facets,* the true educational potential of programed instruction may never be realized.

It will be interesting then to see the extent to which the isolated activities within education reported here will serve as successful models for the actions of other educators. It will be even more interesting to see if, in fact, enough educators will be able to *learn enough fast enough* to supply the type of leadership needed by the fast growing field of programed instruction.

PERHAPS the most eloquent and urgent call for such leadership has been made by J. Bernard Everett, assistant superintendent in Newton, Massachusetts: "It seems to be increasingly evident, therefore, that the major responsibility for the future of programed learning rests primarily with public-school educators like myself. We cannot afford to wait for the academic scholars, the professors of education, or our professional associates to tell us what to do. We must take the initiative, for if we don't it will be seized by others less qualified than we are to decide what should happen in the schools."

This is the statement of a man who feels a real responsibility; it also suggests the double-barreled question as to how many other educators there are like Dr. Everett, and how many school systems there are like Newton, where plans for experimentation with programed instruction began two years ago.

Since that time, not only have many teachers and administrators within the system been thoroughly acquainted with programed instruction, but a small number of teachers have been trained as programers. As a result, a number of short programs have been constructed during the last two summers. Therefore, while there has been no large-scale adoption of programed instruction in the schools of Newton, a close acquaintance with its nature and potential uses have been thoroughly and thoughtfully developed.

Denver, Colorado, began to investigate programed instruction just about the time Newton was laying its plans. Thus far, there have been three facets to Denver's activity: development and use of its own programs, an independent study to evaluate one of the first commercially available programs in English grammar, a cooperative research project on certain elements of program construction.

While Newton's programing efforts have centered around the creation of programs in elementary-school mathematics, Denver has been concentrating largely on work in English and Spanish. Both have, however, begun modest programs in social studies. Recently a program exchange system has been set up between the two systems.

Of the last two years, Lloid Jones, Denver's director of curriculum, said recently: "Our experience thus far gives us hope that programed instruction may enable us to discover a new dimension to teaching and learning."

In New York City, work was begun in April 1960 to program second- and third-grade reading skills for retarded readers in the seventh and eighth grades. Joseph O. Loretan, associate superintendent of the New York City schools, said recently: "The preliminary

trials of these programed materials have been so encouraging that plans are currently under way to program the essential elements of a developmental reading program for both elementary and junior high schools." Meanwhile, the materials already developed are being used for remedial purposes in forty-eight junior high and elementary schools within the city.

This work in New York, like that in Denver and Newton, is being done by classroom teachers who have been trained to construct their own programs. Programing in Newton and Denver has been carried on largely during the summer months, while in New York a number of teachers have been relieved of other duties and are programing on a year-round basis.

During the 1960-61 school year, Pittsburgh city schools released four teachers on a half-time basis to work with the Department of Psychology of the University of Pittsburgh on the experimental programing of materials for classroom use.

During the last few months, a number of other school systems have begun to free staff members for the purpose of creating programs to meet local curriculum needs. In Rochester, New York, a group of six suburban schools have begun a cooperative programming effort with a built-in "program exchange." And Montgomery County, Maryland, plans to use teacher-made programs along with some commercial ones during the current school year.

The decision as to whether a program should be presented in a machine or in "book" form is one confronting educators today. Actually, more programs are being used without machines than with. Much can be said in favor of each method. Note the slide attachment which covers the answers in the programed book pictured below.

Encyclopaedia Britannica Films Photo

THE question may well be raised as to the advisability of schools' doing their own programing. Those who believe the schools should not do programing say that such programing will inevitably result in a great many poor programs, because they will be created by people who do not have the time, talent, training, or temperament requisite to the programing art. Unquestionably, the point is well taken. But, in taking it, other more important points are likely to be missed.

The first point has to do with the value of programed instruction in teacher training. Up to the present time, programed instruction has been thought of almost solely as a way of constructing instructional materials. This may prove to be much too restricting a view as more and more educators become aware of how effective programed instruction can be as a teacher-educating device. As one teacher recently put it: "I have learned more about teaching in three weeks of programing than from forty hours of education courses. I have been forced to *specify precisely* what it was I wanted to teach and I have learned ways to get students to tell me how to teach it."

Plans have been made in Newton and New York City to experiment with a course in programing as part of the in-service education of both new and experienced teachers. During the past summer, teacher workshops in programed instruction were given in schools of education at the University of Chicago, the University of South Florida, Harvard, Mills College of Education, Oregon College of Education, Rhode Island College, the University of Rochester, and Teachers College, Columbia.

Those who voice concern about the quality of the programs created by schools are also likely to forget about certain elements of the programing process which, if taken seriously, can act as an effective, built-in quality check. Not only does programed instruction supply a student with immediate and constant feedback on how well or how poorly he is doing, *it also feeds back to the teacher (programer) minutely detailed reports on how well he has taught what he set out to teach.* Likewise, it enables a school to evaluate and control the quality of its programing efforts. As Lloid Jones of Denver has put it: "We are finding out a great deal about how children actually learn, rather than how adults think they learn."

The two other points often overlooked by those who question the advisability of in-school programing are that there are advantages to having diversity of activity in a new field and that a tremendously im-

portant interaction takes place between programed instruction and curriculum.

Of these, the second is clearly of concern to the professional educator. What has been sometimes overlooked by commercial programers is that the curriculum decision is often the most important single decision made in the creation of a program. The type of curriculum decisions implicit in most of the available commercial programs tempts one to conclude that a conscious effort is being made to teach out-of-date approaches to subject matter with an up-to-date instructional technique.

A program developed by a school will not necessarily represent modern curriculum thinking, but the few available programs that do take a modern approach to subject matter have originated in schools and were programed by teachers.

WHEN we turn from program development to utilization, we find that a number of schools are investigating various uses for programs. New York City public schools, for instance, use programs almost solely for remedial purposes, in conjunction with instruction by experienced teachers. However, the Collegiate School in New York has used programs in statistics, chemistry, physics, and mathematics primarily as homework. In Roanoke, Virginia, the public schools have used mathematics programs both with and without teacher help.

Perhaps the most interesting and imaginative utilization of programed instruction is taking place in Manhasset, Long Island, where last year the local schools began to study the effect of programed instruction on both teachers and pupils in eighth-grade English courses. This school system has concluded that the program they used would not function at its best without a good deal of work by teachers.

John MacGowan, a Manhasset teacher, lists four advantages of programed instruction in English that he has observed:

1. Each student can complete his work in grammar at his own pace.

2. Students—particularly the able ones—save time. The best students in the class are completing a year's work in grammar in twelve and a half hours.

3. Programed materials eliminate the problem of loss of instruction resulting from illness and trips, as well as the problem of how to work a new student into classwork.

4. Student errors are pinpointed, with the result that study can be concentrated on the material which needs particular attention.

Henry M. Brickell, the assistant superintendent, has summarized Manhasset's experience: "Although it is becoming evident that programed instruction can teach without a teacher's assistance, it seems to us that its greatest promise lies in its uses by an able, enthusiastic teacher as one of several tools."

THE interrelated activities of evaluation and research are facets of programed instruction which are indispensable complements to the kind of development and utilization we have been discussing.

When it comes to the question of evaluating programs, it is not surprising to find that no one has yet devised anything like a system for quick and reliable judging of programs.

At present, a committee has been established by the Educational Testing Service to assist that organization in an attempt to develop such reliable criteria. As a member of this committee, I can only report that this job will take time, and that schools will not be able to look to this study for help in evaluating programs for at least another year. In the meantime, some tentative guidelines for evaluation have been published by a committee of psychologists, researchers, and A-V specialists. This "Interim Statement of Evaluative Criteria" appears on page 19 of this issue.

As one might expect, research has given no definitive answers to the many questions which we all have about programed instruction. However, educators contemplating the purchase of teaching machines ought to be aware of the fact that none of the research comparing machines and programed texts has indicated any advantage for the machines. This does not mean that devices are worthless, but it most certainly indicates a great need for research which can point out ways in which the design of teaching machines may be improved to increase learning and reduce the cost of using programed materials. Both of these possibilities are clearly within the capabilities of machines of the future.

IF programed instruction is to grow as effectively as most of us believe possible, there will need to be much more research activity than there has been to date. Most of this research will have to be done within the schools, no matter how theoretical or pragmatic the immediate problem.

There will also be a need for the broad and rapid dissemination of research findings to educators if this needed expenditure of time and energy is not to be wasted. The local school is the ultimate consumer and greatest gainer from programed instruction. But as a prior condition, educators must be ready to turn to the researcher, rather than the salesman, for information. Whether schools can develop their own experts and whether they will provide the necessary leadership within the field of programed instruction remains to be seen. # #

♦ *As president of the non-profit Center for Programed Instruction, Dr. Komoski is involved in the introduction of programed learning via teaching machine and programed text into elementary and secondary education. In addition to conducting research, disseminating findings, and creating programs, the Center endeavors to aid all schools desirous of effectively translating research findings into practical classroom application. Address of the Center is 365 West End Avenue, New York 24.*

Of Mountains and Molehills

SOMEWHERE along the way, most teachers learn to deal with crises. There are booklets entitled *What To Do When a Tornado Approaches Your School* or *What To Do When a Pupil Draws a Gun.* There ought, however, to be a pamphlet called *How To Deal with Molehills.*

Take last Tuesday. I had just parked my car and was walking toward the school when an earring fell off. That was all—one twenty-nine cent earring. I bent over to look for it and then got down on my hands and knees and rummaged through the grass. When I looked up, thirty-one somber faces were gazing at me.

"We thought maybe your legs were broke," said a dead-pan youngster in the front row.

"Oh, I'm all right," I beamed, leaping athletically to my feet. "I lost an earring, that's all.

A sympathetic murmur ran through the crowd.

"Was it a *gold* earring?" a little girl asked.

"Yes, but just a cheap dime-store. . . ."

"Gold!" exclaimed the little girl, turning to the others. "She lost a *gold earring!*"

"Right here in this very grass!" gulped somebody else. "Can we help look for it?"

"Why, certainly, if you want to. But it's only a cheap, gold earring and. . . ."

"Gold!" gasped the children again.

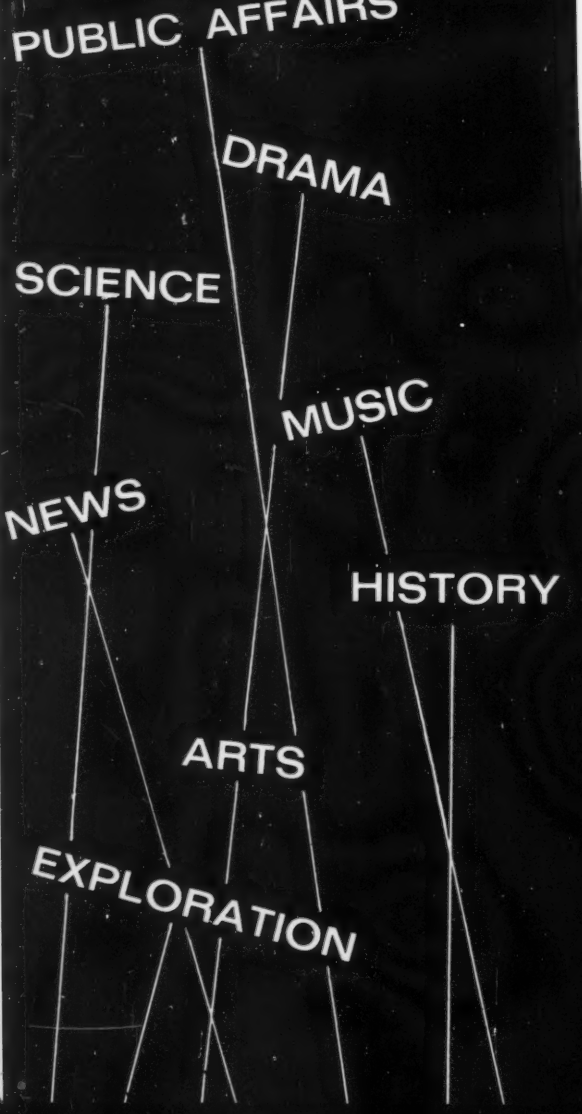
Four search parties had been organized by recess time. Somebody put a notice on the bulletin board, and somebody notified the custodian not to burn leaves. After lunch a child came back to school bearing one pearl earring for me to wear on my other ear for the rest of the day.

My earring had absorbed two recesses, one discussion period, and finally a teacher-principal conference. And where was the tarnished bauble?

I found it when I got home—down the neck of my blouse.

—PHYLLIS REYNOLDS TEDESCO

GETTING THE MOST FROM TV



TO THE HIGH-SCHOOL STUDENT

As a study resource, your television set at home is somewhat like your school library: It can provide a great deal of helpful and stimulating material if you know how to use it to good advantage. In the library, you first study the card index to find out what's available on the subject in which you're interested. For TV, you study the program schedules.

Previewing

In addition to following the daily schedules in newspapers, try to obtain the week-long and detailed listings carried in many Sunday papers. Watch also the listings in such magazines as *Time, Life,* and *TV Guide,* or in *Senior Scholastic,* where TV offerings are divided under drama, music and arts, public affairs and history, and science and exploration.

From these listings, make up your own weekly viewing schedule. Don't make the list so long that it steals time from other study and home activities. Do try to choose programs that:

- Are specifically related to something you'll be studying during the week. If your English class is deep in American literature, you may just be lucky enough to find that a program featuring a noted writer is coming up.
- Will assist you in special assignments. If, for example, you're working on a paper on international relations, a forthcoming TV report on foreign aid could be very useful to you.
- Will help you have a better understanding of today's world. Here you can hardly miss. Whatever's in the headlines is pretty sure to get full and illuminating treatment on TV.
- Fit in with your own personal interests. Maybe this is the winter you've graduated from rock'n'roll to the best in modern jazz or to symphonic music; maybe it's ballet or contemporary theater that sends you. These, too, are areas in which you'll find much to choose from. Even while you listen as your favorite TV family works out its problems every week, you

can pick up pointers for improving your own human relations.

When programs are scheduled which relate directly to one of your school subjects, your teacher may recommend that all members of the class try to watch. In these cases, advance preparation can make a big difference in what all students get out of the program. For instance, before it's time to watch some historical play, a class research unit could bring in facts about the political and social conditions at the time of the play; show on a map where the action will take place; scan the play and select the words and phrases which should be explained to make it easier to follow the TV presentation.

Before viewing a program which you hope will help with a term paper, you may want to do some advance research. If your topic is migratory labor, for example, you can find out whether your state has any laws applying to migrant workers and what national legislation has recently been before Congress.

Postviewing

If the program you have just seen is one which other members of your class have also been asked to watch, write down a quick summary of what you've learned and a few notes on the parts of the program you felt most interesting or important. This done, you're ready to take part in class discussions next day.

If the program has been in the social-studies field, your teacher may plan for the class to discuss such points as whether the program indicated some action that should be taken, extended or clarified the material in your textbook on the same subject, or suggested other areas which the class would like to investigate.

These and similar analytical questions are good ones even if you raise them only in your own mind after a broadcast. TV viewing should not result in believing, but in thoughtful evaluation.

In at least one highly important respect, your television set is not like a library, for in a library a vast amount of material has been built up over the years which will be there tomorrow, and next week, and next year. With few exceptions, TV programs are generally seen and heard only once, then gone forever. You can't bring them back. But you can plan ahead to be sure to catch those that are most worthwhile. You can develop ways to help you get the most from this resource for learning.

Other Things To Do

1. Make check lists of things to watch for during (a) a political debate, (b) a weekly news summary, (c) an interview with a prominent person.
2. For one of your English assignments, suppose yourself to be the TV critic for a big city paper and write a review of a program you have seen.
3. Find out what educational programs may be available to you during out-of-school time. If they interest you, tune in whenever you can even if you can't enroll for credit.
4. If you're studying shorthand, practice during a panel discussion involving persons who talk at different speeds and with different enunciations.
5. If you're an art student, try to catch on your sketch pad scenes from a travelogue or the moods you experience while listening to a symphony concert.

TO THE HIGH-SCHOOL TEACHER

Fred W. Friendly, executive producer of *CBS Reports*, an informational program of the CBS Television Network, has prepared this centerspread which outlines procedures for helping high-school students relate out-of-school TV viewing to school texts, special assignments, and their individual interests.

The wide range covered by television materials should make these suggestions useful in social studies, language arts, and other subject fields.

In any case, the purpose of this centerspread is to help young people become more thoughtful and selective viewers of TV.

High-school students in District Heights, Maryland, pretested this spread. Reprints are available, 35 for $1 (the minimum order), from NEA Publication Sales, 1201 16th St., N.W., Washington 6, D.C.

100 Years of Service to the Nation

through land-grant institutions

HERMAN R. ALLEN, Centennial Convention manager, American Association of Land-Grant Colleges and State Universities, Washington, D.C.; formerly education editor, Associated Press and *Newsweek*.

THE War Department telegraph, which had clicked dolefully enough over the year since the disaster at Bull Run, brought even more dirge-like tidings from the field one hot and sticky day in 1862. The Peninsular Campaign into Virginia, on which so much had been staked, had collapsed. McClellan, cut off from his supplies, had retreated to Malvern Hill.

A desperate Treasury Department, scraping the barrel for funds to fight what all Washington now could see was going to be a long and costly war, ordered: "Wherever you find an article, a product, a trade, a profession, or a source of income, tax it."

At the White House the next day, July 2, 1862, the careworn Abraham Lincoln put his pen to the famous call-up of 300,000 men. Yet even on that day, with its crushing load of military decisions, President Lincoln found time to give thought to quite another kind of document among those that heaped his desk. Taking it in his bony hand, he began to read:

"An Act donating public lands to the several states and Territories which may provide colleges for the benefit of agriculture and the mechanic arts . . . without excluding other scientific and classical studies . . . in order to promote the liberal and practical education of the industrial classes. . . ."

Years before, young Abe Lincoln had been walking with a friend down a crowded street back home in Illinois. Spying a beetle struggling on its back, he had stopped and set it on its feet. To his companion's amused inquiry, he replied: "I wanted to give that beetle the same opportunity as all other beetles."

Here now was the means of giving, not every beetle, but every young American, the same opportunity as his fellows regardless of whether he came from a position of wealth and social privilege or—as did the self-tutored Abraham Lincoln—from the "industrial classes."

Lincoln reached again for his pen and signed the famous Morrill Act, which brought into being our now world-renowned system of land-grant colleges and universities.

The act granted to each state 30,000 acres of federally owned land for each of its members of Congress. Hence the name of the system, which now includes sixty-eight institutions, one or more in every one of the fifty states and Puerto Rico, and which encompasses such giants as the universities of California, Illinois, and Maryland, Rutgers, Purdue, Texas A. & M., and the Massachusetts Institute of Technology.

States which no longer contained enough federal land received scrip which entitled them to land in the still undeveloped Western states. The land was to be sold and the income from the invested proceeds used for instruction in the prescribed areas of "agriculture and the mechanic arts" at new institutions or at existing ones—public or private—which would be designated as land-grant in whole or in part. In all, some 17,430,000 acres were eventually given to the states, which sold them for a bit over seven and one-half million dollars.

THE current academic year has been designated as Centennial Year by the American Association of Land-Grant Colleges and State Universities, and the first formal event will be a centennial convocation at Kansas City, Missouri, November 12-16.

Not inclined simply to pat themselves on the back for surviving the past 100 years, the institutions forming the association's membership are devoting the year to looking ahead into the next 100. A major feature of the centennial is an evaluation by an outside authority of the work being done in each of the association's eight subject-matter divisions, with positive recommendations for the future.

According to the Centennial Steering Committee the two principal purposes of the anniversary are:

1. To assess and evaluate the work the land-grant institutions are now doing toward the end that they may iden-

tify more clearly their special responsibility to the people of this country and the world during their second century of service.

2. To build public understanding of the land-grant college and university movement, especially as this may contribute to solving present problems and meeting future needs of all colleges and of the nation.

To further the second purpose, the association is promoting Citizen Seminars in every state to examine such problems as: Who is going to be educated? What kind and quality of education will he get and for what purposes? Who is going to pay for it? Who will control expenditure of funds?

WHAT stirred the groundswell that eventually thundered ashore as the land-grant system? For the answer, we have to go back to the days of the Founding Fathers.

Often quoted is the letter which Thomas Jefferson wrote his friend George Wythe in 1786, in which he said:

> I think by far the most important bill in our whole code is that for the diffusion of knowledge among the people. No other sure foundation can be devised for the preservation of freedom and happiness . . . Preach, my dear sir, a crusade against ignorance; establish and improve the law for educating the common people. Let our countrymen know that the people alone can protect us against these evils, and that the tax which will be paid for this purpose is not more than the thousandth part of what will be paid . . . if we leave the people in ignorance.

Already, in the Northwest Ordinance of 1785, the government had stated a national interest in education by setting aside "lot No. 16, of every township, for the maintenance of public schools" in the area which later was to become the states of Wisconsin, Michigan, Illinois, Indiana, and Ohio. In 1787, granting a charter for the organization of Ohio, the government stipulated that "not more than two complete townships be given perpetually for the purposes of an University." Similar provisions were written into the charters of most of the states established up to the Civil War.

By and large, however, the idea of education for the "industrial classes" simply drifted. A proposal for a national university, advanced by George Washington in his first inaugural address and frequently revived by others, never came off. Several states attempted to set up popular universities, but all failed.

Then, finally, the time ripened. It is still debated who originated the land-grant idea as we know it today, but two names stand out—Jonathan B. Turner and Justin S. Morrill.

Turner, a Massachusetts native and Yale graduate,

LAND-GRANT COLLEGES & STATE UNIVERSITIES

(...campuses), statewide headquarters, Berkeley.

went west to become a professor at tiny Illinois College in 1833. Fifteen years later, he resigned from the Presbyterian institution after a long tussle over his views on slavery and religion. He turned to farming near Jacksonville, Illinois, devoting his acres to experimentation. He developed what is still known as the Turner raspberry and, discovering that the Osage orange bush made good natural fencing, went into the business of selling these plants across the prairie for miles around.

Convinced, through his practical experiences, that farmers and mechanics needed education as much as doctors and lawyers, he crystallized his ideas in a speech before the Illinois Teachers Institute at Griggsville in 1850. He recommended that Illinois endow a state university with money it had received from sales of public lands. The next year a farmers convention at Granville petitioned the legislature to put this plan into effect and asked Turner to help organize another meeting at Springfield—a meeting which was to go down as one of the most shameful episodes in the history of American education.

Die-hard backers of classical education heckled speakers and audience in an effort to discredit Turner's idea. As his daughter, Mary Turner Carriell, recalled it later:

> Guests by courtesy took possession of the meeting and, by preconcerted plans, attempted through ridicule and sarcasm to break it up. . . . They hurled at the audience a volley of questions relating to abstract and classical subjects, thinking that no one would be able to answer them. . . . Professor Turner rose in his seat and respectfully answered all questions. Then he returned the compliment by asking them the practical questions of the day . . . until they were glad to take refuge in flight.

Turner lived to lay the cornerstone of the first building of the land-grant University of Illinois in 1870.

Morrill, son of a Vermont blacksmith, went to work in a general store at fifteen, rose in the mercantile world until at thirty-eight he was able to retire and go into politics. Six years later, in 1854, he was elected to Congress on the Whig ticket. He served as representative and senator for forty-four years, until his death.

Always keenly aware that "it was a great disadvantage to me that I could not go to school," Morrill was constantly probing for a way to extend education to those who could not afford the cost of the gentlemen's schools of the day. "The idea of obtaining a land grant for the foundation of colleges," he wrote in a penciled memo of uncertain date, "I think I first formed as early as 1856. . . . Where I obtained the first hint of such a measure, I am wholly unable to say."

Although Turner, in his 1850 Griggsville speech, had said, "We need a university for the industrial classes in each of the states," and the Illinois legislature had petitioned Congress in 1853 to establish such a system, it was Morrill who first brought the idea to a boil in Washington. He introduced his first land-grant bill in 1857. It passed, but President Buchanan vetoed it, stating, among other things, that he believed it unconstitutional because Congress did not have power to appropriate money for education.

Morrill, in a scathing reply on the House floor to Buchanan's veto message, noted that Congress had already established a federal hospital for the insane (St. Elizabeth's in Washington, D.C.) and that Buchanan himself, while a member of Congress, had voted to set up a federal school for the deaf-mutes in Kentucky.

"If we can legislate for the deaf and dumb," he asked, "may we not legislate for those who can hear and speak? If we can legislate for the insane, may we not legislate for the sane?"

The veto was upheld in Congress, but in December 1861 Morrill introduced his bill again, with the addition—a master political stroke in wartime—of a requirement that instruction in "military tactics" also be offered. Six months later Congress passed it. The same year the legislatures of three states—Connecticut, Iowa, and Vermont—accepted it, and by the end of 1863 fourteen more had done so.

Legislation in support of the land-grant system did not stop with the original Morrill Act. In 1887, the Hatch Act authorized $15,000 a year in federal funds to be appropriated to each state for agricultural experiment stations at land-grant schools. Today, through a series of further enactments, a total of $30 million of such funds has been appropriated.

The second Morrill Act of 1890 authorized a permanent annual endowment starting with $15,000 and increasing $1000 annually to a top of $25,000 (raised to $50,000 in 1908) for each land-grant institution. The 1890 law contained a historic provision which prohibited any state from using the money for institutions which barred Negroes, unless it established another institution for Negroes. Sixteen Southern states founded separate Negro colleges, but today several of these have been desegregated along with previously all-white institutions in the same states.

In 1914 the Smith-Lever Act authorized the beginning of today's cooperative Agricultural Extension Service, through which research findings of both the U.S. Department of Agriculture and the land-grant institutions in agriculture and home economics are carried to the farmer and his wife. The act authorized $4,580,000 a year, to be distributed among the states on the basis of agricultural population and to be matched by the states. Augmented by later acts, the federal contribution to extension is now in excess of $50 million a year.

In contrast to the outlay for experimentation heavily supported by federal funds, and for extension, supported to a substantial degree, the cost of classroom teaching is paid almost entirely by the states. Of the more than $325 million which the sixty-eight land-grant institutions spend annually on campus instruction, only about eight and one-half million dollars comes from federal sources, two and one-quarter

million dollars of it as endowment from sale of land under the original Morrill Act of 1862.

This relatively modest federal investment has brought about a network of universities which today award nearly forty per cent of the Ph.D.'s awarded by American universities in all fields—more than half of those in engineering (the modern version of "mechanic arts") and all of those in agriculture.

Nor have the land-grant institutions overlooked the Morrill Act's admonition that they not exclude "other scientific and classical studies." Year in and year out, they grant half of the doctorates in biology, a third of those in mathematics and the social sciences, a fourth of those in English, literature, and foreign languages.

Of the forty living American winners of the Nobel prize, twenty-four earned one or more degrees at land-grant institutions. Selman Waksman, Russian-born Rutgers graduate, won his prize for the discovery of streptomycin. Pearl Buck, a Cornell M.A., won hers in literature, and Ralph Bunche of U.C.L.A., grandson of a slave and now undersecretary of the United Nations, was honored for his work as UN mediator in Palestine.

Researchers at the land-grant institutions have made discoveries that range from agricultural pest-control drugs to mining processes and the first atom-smashing cyclotron. Land-grant colleges and universities have pioneered in new methods for hundreds of industries, from ceramics to wood pulp and soybean processing.

In both war and peace, land-grant colleges and universities have served the U.S. well. Early in World War II, General George C. Marshall, then Army chief of staff, estimated that the R.O.T.C., born under the 1862 Morrill Act, had speeded mobilization by six months. More than half of the R.O.T.C.-trained officers available at that time were trained at land-grant institutions.

Now, over the fifteen years that the United States has assumed new overseas responsibilities, first under Point IV and later under the International Cooperation Administration, the land-grant institutions have been facing up to a new challenge.

The government recognized that many a developing nation was in about the same situation that the U.S. was in 100 years ago. The land-grant institutions, with their experience and their tradition of "going to the people" through extension work—not only in agriculture but in public health, public administration, teacher education, and a host of other areas—were ready and willing to pitch in.

By latest count, teams of land-grant people were at work in some forty countries under I.C.A. and foundation auspices as well as under individually negotiated contracts. Michigan State educators, for instance, are helping eastern Nigerians set up a new university which, in line with that area's needs, will operate on land-grant principles. The University of Nebraska is working in agriculture, engineering, and business administration in Turkey; Washington State University is covering the same fields—plus home economics—in Pakistan.

With arrival of the Peace Corps on the scene, land-grant institutions—Rutgers, California, Penn State, Ohio State, Iowa State, and Colorado State among them—predominated among universities selected to set up the first training centers. And land-grant students and graduates were strongly represented among the first youthful overseas representatives selected under the program.

DESPITE their involvement in research and foreign activities, however, the land-grant colleges and universities have never forgotten their first mission—the higher education of young Americans. Although lines have become blurred—many a Cadillac is parked on land-grant campuses now, beside the more modest vehicles belonging to scions of the "industrial classes"—one thing is clear: One out of three American boys and girls goes to college today as against one in five or six in Europe, where education for the lesser privileged is still in its struggling infancy.

As for quality, few greater tributes have been paid the land-grant system than that of Polykarp Kusch, German-born Nobel Prize physicist. "A Ph.D. from a first-rate American university," says Dr. Kusch, who took his own doctorate at just such an institution, the land-grant University of Illinois, "gives a scientist greater stature than foreign training." # #

An early land-grant college building, Old Main (1891) was the original structure on the University of Arizona's 120-acre campus. The building is now surrounded by 77 modern classroom, residence, and research buildings.

WILLIAM RILEY PARKER, distinguished service professor of English, Indiana University, Bloomington.

Refocusing the English Program

I HAVE never known a time when English teachers faced more exciting prospects than at present. We appear to be on the verge of a kind of revolution in the teaching of English, one that involves not only methods and objectives, but also a redefinition and redistribution of basic subject matter. This is something very different from what I have lived with intimately during thirty-three years of teaching—the visions and revisions, the periodic patching of curriculum, the annual soul searchings, the willing spirits hoping to prove that the Flesch was weak.

What is happening today is a result of a realization, first voiced at the national level in 1958 (at a series of conferences on "basic issues") and now widely shared at the local level, that for many decades we have sold English down the river, letting our subject become all things to all people, diluting it and debasing it to such an extent that we ourselves lost sight of both its essential nature and its yet-to-be-realized potential.

BY way of clarifying these statements, let me explain what I am *not* talking about. To some extent, definitions of English must always undergo change. To the extent that English is literature, it can never be limited and fixed, like Latin. Taste changes; each new generation must reinterpret for itself the body of literature that survives the erosion of taste; every year sees the creation of new literature that challenges the old in relevance—aesthetic, intellectual, social; and finally, all literature, new or old, can reach today's child in ways that thirty-three years ago were undreamt of—through television, sound motion pictures, disc and tape recordings, comic books, magazines of mass circulation, and teaching machines. English is no longer tied firmly to Mr. Gutenberg's invention, though, in its new freedom, it had better not prove disloyal to the printed book.

To the extent that English is language, again it must always undergo change, for language is a living thing. Words are born every minute. They can die young, or they can mature, marry, beget children, enjoy grandchildren, and finally fade away. Grammar, too, is a living thing; indeed, the grammar of every language is a unique being.

These statements would have seemed heretical to many English teachers thirty-three years ago. Grammar was a set of rules like the Ten Commandments—and just about as often obeyed. Language was something precious and inviolate, like chastity, and English teachers were its self-appointed protectors.

Many forces have conspired to change these old-fashioned notions, but the chief force has been the development in this country—roughly during the last four decades—of a new discipline, the science of linguistics. This in turn has influenced the development of one of the newest of disciplines, the teaching of English as a foreign language—a fascinating field that promises, in time, to strengthen the teaching of English as a *first* language.

Even to the extent that English is composition, it inevitably undergoes change. Modern prose style was born only about three hundred years ago as a reaction to Ciceronian influences, but it goes on reacting, be it to journalism or Joyce, the hawing of Madison Avenue or the Hemingway of *Life*. The typewriter may have more direct effect on English style than the printing press. And whatever English teachers may tell their students, notions of punctuation change, notions of paragraphing change, notions of sentence structure change.

BUT these minor, perpetual revolutions are not the impending revolution I began by speaking of. Part of the major revolution is the growing conviction of teachers that "English" as a subject consists of just three things and no more. "English" is literature, language, and composition—period. These are its subject matter, and the nature of knowledge in this field is the discovery of how these three things act, interact, change, and grow like the living things they are. The values of that knowledge are civilizing, utilitarian, and intellectual.

If this seems a pretty obvious (if not simple-minded) discovery to be making, let us remember what has happened to the English teacher in the last fifty or so years. Although much could be said about his low salary, his insufficient training, and his unsatisfactory working conditions, I will say nothing, for in these respects he has not been unique, and I don't want to inspire outbursts of eloquence from colleagues in other fields.

In one respect, however, he has been unique: No teacher of any other subject has been such an obvious and handy instrument for introducing *nonliterary* ideas and emphases in the curriculum. Whenever the principal or superintendent came home from a meeting with a new pedagogical goal, English could

make up a new unit for introducing it. Moreover, as the only required course, English, when it is not acting like a branch of social studies, suffers intrusions from everything in school which applies to all students—from safety programs to Red Cross drives.

To say it briefly, English teachers became increasingly confused about what the legitimate content of their curriculum should be. A revolution was overdue, and it seems to be at hand—"English" is literature, language, and composition.

THIS is retrenchment; but the revolution has another, positive and exciting side. Redefining their subject, English teachers made the rediscovery that its essential nature is *progressive* and *cumulative*. By its nature, language builds on language, literature builds on literature. If the main point or an important point made by B—in an allusion, a metaphor, or whatever—depends on knowledge of A, then A should be read and understood before B. Literature behaves that way, even when it is reacting against something. Not surprisingly, language behaves that way too.

Loss of sight of these basic truths had resulted in the most incredible inefficiency—in much wasteful duplication and reiteration, in increasing uncoordination of parts of the English curriculum. Without the least exaggeration I can say that, as a teacher of graduate students in English, there is not one single assumption I can make about either knowledge or skill already acquired. I cannot assume a single book read by everyone in my class; I cannot assume knowledge of the simplest technical term or the simplest Bible story or myth or fairy tale or piece of children's literature. I cannot assume anything except that I have a job that is quite needlessly difficult.

In pointing out these things, I am not building up to another attack on education courses or law requirements of certification. I am criticizing English teachers, from the graduate schools on down; I am criticizing myself.

How did we ever allow such curricular chaos, such gross inefficiency? I think we did so because our subject was still *very new* in the schools and colleges when a multiplicity of social and educational forces hit us so hard and so often that there was never time to take stock, never time to remember our potentialities as a discipline and to work toward realizing them. We were overwhelmed by mass education that was also decentralized education, by the elective system, by the relentless fragmentation and departmentalization of knowledge. We were too popular to be wise.

But leaders among English teachers—in the professional organizations, at national and regional conferences—are now saying, "We must repent if we would be saved." A thorough re-examination of the whole problem of teaching English, from the elementary grades through the graduate school, is being urgently called for. The conviction is growing that out of this can come, and will come, a new concept of our subject—English seen as *"sequential and cumulative in nature,* practically and socially useful, and permanently rewarding to the mind and spirit."

FOLLOWING are excerpts from a recent statement by the Commission on English of the College Entrance Examination Board. Although the commission is concentrating upon the teaching of English for college preparatory students in grades nine through twelve, it believes that this statement has relevance for the entire English program:

> The three central subjects of the English curriculum are language, literature, and composition. Work in all three . . . should be so planned as to promote steady and cumulative progress in the development of skills and the acquisition of knowledge.
>
> The study of language should permeate all the work in English; specifically, it should include (a) spelling, (b) the enrichment of vocabulary, less through word-lists than through attention to the contexts of literature read and compositions written, (c) systematic study of word derivations and change in word meanings, (d) mastery of the forms of English usage characteristic in the spoken and written discourse of educated people, (e) some competence in modern linguistic analysis through the study of modern English grammar. Such study should be both for use in speaking and writing and for the pleasure that comes from the acquisition of knowledge.
>
> Reading for class-time study should be of two kinds: (a) matter on many topics, not necessarily literary, to the special obligation of the English teacher is always to stimulate intellectual interest and to exemplify compositional forms; (b) literature in English and in translation. The proportion will vary from grade to grade, but the second, to literature. . . . Equally important to a sound program for the study of literature is careful allocation of materials to each year in a soundly articulated program. Only such allocation makes possible a satisfactory progression in knowledge and understanding. Through accumulated experience a student completing the last year of high school may develop a sound appreciation of literary forms, a useful vocabulary of literary terms, and a secure command of the ideas and art of a respectable number of major works.
>
> Composition should be neither infrequent nor incidental. It should be a part of each week's work and should be intimately connected with the other parts of that work. Although opportunities for 'creative writing' should be given as a means of enlarging the imagination, sharpening perception, and heightening sensitivity in the use of language, most of the teaching of writing should be directed toward exposition and the components of the expository process—definition, description, analysis, comparison and contrast, inference, and judgment. . . . The subjects for composition should derive in the main from the study of language and literature, though, especially in the early years of high school, more general topics may be useful from time to time. In either case, the topics must be not so much assigned as developed; that is, they must grow out of careful planning and thorough motivation. The resulting compositions should be carefully read, often individually discussed with their writers, and frequently rewritten. It is for this painstaking work that the English teacher must be given time and freedom from encumbering obligations.

That is the end of the statement. Its final point

will not, I trust, be lost on you. One paper a week from each student of a normal high school teacher of English requires from fifteen to thirty hours a week of extra-school time. In other words, if the English teacher is at all conscientious, he must put in a total work week of about sixty hours.

THUS far I have reported to you the views of leaders of my profession. I would like now to express a conviction of my own, not shared, as yet, by many of my colleagues. I believe that education should be concerned, not merely with teaching knowledge and skills, but also with teaching *attitudes*. The targets that I, personally, would set up in the teaching of English are these:

Target 1: So to teach *reading* that students develop a *permanent* interest in reading and a desire to cultivate taste.

Target 2: So to teach *writing* that students develop a *permanent* desire to write clearly and effectively.

Target 3: So to teach *language* that students develop a *permanent* interest in language and a desire to control its beauty and its power.

The fact that it is difficult, perhaps impossible, to measure success in achieving these objectives does not bother me in the least. The same criticism can be made of any religion I've ever heard of.

Perhaps this analogy is unfortunate. To prevent misunderstanding, let me say that I grow impatient with those who talk about education largely as "preparation for life." Education *is* life, a sizable hunk of it, and it is preparation in the sense that life prepares for life. I happen to believe that learning is one of the most joyful and satisfying aspects of living. And I myself am still learning the art and science of literature and language and composition. # #

♦ *Comments by teachers of English about Dr. Parker's article are invited for possible use in "Our Readers Write." The article is adapted from a speech made by Dr. Parker at the Disciplines Seminar of the NEA Project on Instruction.*

Thanksgiving

MRS. Klein was low in spirit as she told her first-graders, as in so many years past, to draw a picture of something for which they were thankful. She thought once again of how little to be thankful for these particular children, the forlorn offerings of deteriorating neighborhoods, actually had. She wondered what she herself in her lonely state would have drawn if the assignment had been hers.

From her long experience as a teacher, Mrs. Klein knew that when it came time to show the papers, most of the class would have drawn pictures of turkeys or of bountifully laden Thanksgiving tables. That was what the majority believed was expected of them.

She also knew with certainty that Janey would draw a picture labeled "Mother," because Janey's mother would have expected it of her. As for Robert, he would draw a battleship because he was always drawing battleships (although his explanation would be as plausible as ever: Battleships protect us and so they are something to be thankful for).

What took Mrs. Klein aback was Douglas's picture. Douglas she looked upon as her true child of misery, so scrubby and forlorn, and so likely to be found close in her shadow as they went outside for recess. Douglas's drawing was simply this:

A hand obviously, but whose hand? The class had its own ideas, seemingly captivated by the abstract and surprising image. "I think, Teacher, that it must be the hand of God that brings us food," said one.

"A farmer," said another, "because they grow the turkeys."

"It looks more like a policeman, and they protect us."

"So do the battleship men." (This from Robert.)

"Mothers help children most of all." (Janey, of course.)

"It's Uncle Sam, Mrs. Klein. I remember a hand in the paper like that once, taking some children into a school."

"I think," said Lavinia, who was always so serious and final, "that it is supposed to be all the hands that help us, only Douglas could only draw one of them."

Mrs. Klein had almost forgotten Douglas in her pleasure at finding the class so responsive. He looked embarrassed now and unwilling to explain to the class. When she had the others at work on their numbering, she bent over his desk, seeing again the raveled sweater against the dirty neck, and asked whose hand it was. Douglas barely mumbled, "It's yours, Teacher."

Back at her desk, Mrs. Klein thought of how she must have taken Douglas by the hand from time to time. She often did that with the children, and Douglas was usually standing silently by. But that it should have meant so much! Perhaps, she reflected, this was her Thanksgiving and everybody's Thanksgiving. Not the material things given unto us, but the chance in whatever small way to give something to others. # #

♦ *This vignette appeared originally as an editorial in the* Baltimore Sun *and appears by permission of the* Sun's *editorial staff. It is another in the* Journal *series of reprints dealing with schools or with teaching.*

ABRAHAM RASKIN, professor of physiology, health and hygiene, and coordinator of the sciences, Hunter College, New York City. He has also taught at the Bronx High School of Science.

SCIENCE TOYS

in the classroom and the home

Toy magnetic dogs that repel each other, lariats that hum when they are whirled, miniature pearl divers that can plumb the depths of a fishbowl, jet boats that race across a pond, little wooden penguins that walk—these and many others are part of the fascinating world of children's toys now available.

These toys are fun—just watch the boys and girls playing with them—but they can also serve a valuable learning purpose, especially in demonstrating elementary science principles. From the toy dogs children can learn about magnetism; from the lariat, about sound; from the pearl divers, about flotation; from the jet boat, about energy; and from the walking penguins, about simple machines.

And there are dozens more—mystery airplanes that demonstrate static electricity, spring grasshoppers that show the pressure of the air, tops and loop-the-loops that indicate the force of gravity, periscopes that depend on the principles of light.

Teachers now recognize how helpful the toys of this type can be in the teaching of science. In the classroom, the toys help to motivate the child and to develop real, rather than superficial, understandings. They aid the teacher by serving as learning experiences in the development of a generalization or a concept. Further, they can be a means of evaluating instruction and can serve as substitutes for more expensive commercial apparatus.

And when the parent buys the child science toys to use at home, the child's learning is extended beyond the classroom. At this time of year, when parents may be asking for advice about toy purchases, the teacher might suggest appropriate science toys.

What are some of the criteria the teacher—or the parent—should consider when choosing from the wealth of toys available?

Certainly, the toy should really do what its manufacturer claims it will do. If it is supposed to float, it should; if it is labeled "easily assembled by a child," it should be. Complicated toys that have lengthy instruction books with them usually should be avoided. Not every child is interested in sitting down with a book of instructions and many small pieces of equipment and working his way through a series of experiences.

Most children, I believe, want a toy that has an intriguing appearance and that will, in addition, provide something for them to do. The activity may involve putting something together, making something move in an interesting or new way, engaging in a process such as molding or plating, or making a series of observations. In every case, the child should be able to complete the activity in a relatively short time and to repeat it, with some modification, many times.

In addition to considering the criteria already mentioned, teachers and parents need to ask themselves these questions before choosing a science toy for their children:

1. Is the child ready for the toy? Little learning or joy will result from a complex toy if the child has not yet developed the sustained mental activity necessary for dealing with it.

2. Does the toy involve understandings and concept formations for which the child is prepared? The selection of a toy should be governed more by psychological readiness than by chronological age.

3. Does the child possess the physical dexterity required to operate the toy?

4. Are the directions accompanying the toy written well and at the child's reading and comprehension level? The directions should require a minimum of adult interpretation.

5. Is the toy safe to use and ruggedly built? Toys should not have sharp edges or points. If a toy is electrical, it should have wiring approved by the Underwriters' Laboratories. A toy should not contain harmful chemicals such as strong acids. Finally, a toy made up of many parts should have a sturdy container for storage. # #

Is there an example of nobility in the classroom?

Carl Purcell Photo

Education for What? A scientist answers

THE child whose education is of concern to us has come through a long, wild, and complicated evolutionary past. While evidences of his subhuman heritage still persist, he reaches to explore a human future that is essentially uncharted.

The child goes through a plastic stage of development for a prolonged period after birth. During this period, his mind and his emotions are shaped by the experiences and ideas to which he is exposed. This will influence his character, his values, and his choices and, in turn, determine the causes and goals to which he becomes committed.

The limits of possibilities within him are genetically determined and exist in his protoplasm as if anticipating demands that will arise. Education and experience bring out the pre-existing possibilities that would otherwise remain latent or would never be expressed unless opportunity occurred for their development.

Apparently, man can learn and can develop only those possibilities that are within him. Just as inequality is inherent in man's physical attributes, inequality in areas of interest, aptitudes, and capacity for learning also appears to be inherent and should be considered when dealing with the doctrine of equality of opportunity.

Ancient prejudices suggesting that genetic inferiority or superiority in learning capacity are covariant with certain racial or ethnic characteristics are baseless.

Evolution and Man's Potential

The germ plasm contains the successful formula for survival. Biologic change, or evolution from pre-

existing forms of life, seems to have been influenced by environmental fields of force which evoked the changes that ensued. Without "cause" or "purpose," which constitute such fields of force, living organisms would not have evolved as they have, and without the environmental "causes" or human "purposes" that influenced human life in the past, human life in its present form and design would not exist. Is this not evidence of the influence man has had for self-induced change, and of the role that he plays in his own evolution?

It is evident that each individual differs from all others and, individually, requires discovery of his own special attributes. Just as societies and cultures may be said to create fields of force for change, in the same sense an individual creates a field of force upon himself and contributes to the field of force that acts upon others. If we then speak of such fields of force and of the effects they induce, we observe a directional influence upon human potential induced by environment—whether this be physical, social, or individual.

Men *exist* not merely as individuals, contiguously with others, but rather as individual units or cells of an organism that we may refer to as mankind. In reality, however, man *functions* as an individual. It would seem, therefore, that man, the individual, is simultaneously subject to two different fields of force, the center of one of which is in himself and the center of the other in society or in the culture of which he is a part. If he becomes alienated from one force, it is likely that he will become alienated from the other as well, because his humanity depends upon contact with the centers of both from which motivation springs.

JONAS E. SALK, M.D., head, Virus Research Laboratory, School of Medicine, University of Pittsburgh.

The Ultimate Ideal

While we cannot know the ultimate evolutionary destiny of man, we can sense the pattern of future history and we can place a value judgment upon trends and personalities the influence of which can be foreseen. It is in this respect that education can play an important and vital role to influence human destiny—lest fate and chance alone take their toll.

Our reason for devotion to the respective causes which we have each espoused is that we might, through understanding, anticipate the course of events in a way that might bring some influence to bear permitting us to contribute to shaping the world nearer to our heart's desire. If this be our goal, then we must join with those who share our dreams. The fulfillment of these dreams will be inevitable if we each assume our responsibility.

At this critical stage of history, we must ask ourselves as did the ancient Greeks, "For what are we to educate?" As the values of the Greek city-state changed from personal qualities of nobility of character to those of intellectual attainments measured by success, the goals of education changed to satisfy this new need.

It is strange to contemplate the vast changes that have occurred since then and to observe that modern man finds it possible to master the intricacies of putting men into space, but seems not yet able to solve the world-wide problems of poverty, starvation, and war. Nor has he been able to resolve the seemingly minor, but no less significant, wars in communities, between neighbors who wish neither to destroy each other nor to accept each other. Nor has he been able to resolve the wars within himself. This, too, would seem to be space for exploration—the kind of exploration that each individual can take part in as an exciting adventure, the kind that could be rewarding for all who are alive today and for the generations yet to come.

Is such exploration not a matter of perspective, understanding, and values and, therefore, amenable to the skills and tools of the educator?

Educators have clients to serve, as do other professionals. But, unlike other professionals, educators have two clients simultaneously—the individual and society—each of which has separate needs as well as joint needs. It does not matter where one begins. Whether it be with society or with the individual, it soon becomes necessary to serve both.

In individualistic societies, the emphasis has been upon the individual, and great resistance is usually encountered against changes that may be said to be of social benefit; that is, of benefit to the individual without the exercise of his individual initiative. In societies that are socialistically oriented, there is discouragement of striving for personal benefits unless they occur in the course of contributing to a planned social effort.

It would seem that, by a true and balanced orientation between man's relationship with man and with himself in all cultures, teachers and educators the world over could influence the destiny of societies and of the individuals of which they are comprised.

What To Do and How

It is not my intention here to try to provide answers. Sometimes it is more important to ask the right questions.

It is equally important not to confuse method with goal or purpose. We might ask whether we should seek the perfect method or final goals and values or whether we should seek to establish quality of character that could justly be referred to as noble.

If more men of noble character were to exist, then

would not means and ends more frequently be equally noble? Is this, then, not ultimately the goal toward which education is striving?

The emphasis that at times is upon "facts" and upon "how" and upon "things" leaves the inner man himself isolated and suffering. Is it not in the inner man where the potential for nobility resides which needs so much to be nourished? Is this the part of man that allows him to do what is right for the right reason and, at times, perhaps, do what is wrong but for the right reason? Is it enough to do what is right? T. S. Eliot's reply would be:

The last temptation is the greatest treason:
To do the right deed for the wrong reason.

If we know that right exists only superficially, and we know that this is not enough, then perhaps we know why man is spiritually impoverished, unhappy, and sick. If our code were to be not to do what is right, but to do what is right *for the right reason*, we would examine our reasons and determine whether in so thinking and feeling we were acting with maturity and with consideration for other humans or whether we were acting only because of our individual competitiveness.

If the latter, need destructiveness or violence be part of this competitiveness? If the former, man's inhumanity would dissolve and be replaced by feelings of satisfaction with self for which man seems to have been designed.

What do we mean by noble? Is not "doing the right thing for the right reason" an acceptable meaning of nobility? Is this not the kind of behavior that will not be tainted or altered by ignoble circumstances?

It must be that the potential for nobility is biologically endowed and is present at birth. There must be a time in life prior to which nobility becomes established and strengthened. During this period of time, the child is still under the aegis of the parents, who have to counteract the influence of an ignoble society. Where, therefore, can we begin and when, in terms of the life span of each successive generation?

If school is a part of life itself, and not merely preparation for life, then should we not also expect nobility there by example? Can nobility perhaps be taught as is reading, writing, arithmetic, biology?

It has been suggested that it would be desirable if we had a vaccine against inhumanity, a vaccine that would allow nobility to mature without deformity or destruction. I had not known what might be injected. Now I think I know, and know when it should be done—as early in life as possible.

Perhaps this ideal will never be attained, but we must establish an ideal, and it must be based upon a realistic appraisal of the nature of the problem. We must seek basic rather than expedient solutions to man's problems through the only means for so doing—through education in its broadest meaning. # #

♦ *This article is condensed from a speech delivered by Dr. Salk at the NEA convention in Atlantic City.*

A trip around the world via Pan Am jet awaits the educator who can present the best idea of what American education—past, present, and future—looks like.

Symbol Search Continues

THE search for a symbol of American education for the Hall of Education at the 1964-65 New York World's Fair, announced in the October NEA JOURNAL, has already begun to attract suggestions from NEA members all over the country.

The opportunity to propose an *objet d'art* which will win wide public attention for the profession, coupled with the enticement of an around-the-world NEA tour which will be awarded to the educator who submits the best idea, has stimulated wide interest.

International Fair Consultants, sponsors of the Hall of Education, are designing a pavilion for a central site at the fairgrounds to present the story of American education in dramatic fashion. The symbol search seeks suggestions for a sculpture or some other art form to depict the past, present, and future of education. A representation of the symbol will be placed at the entrance to the pavilion.

A second-place award of a nationwide air trip, culminating in a visit to the World's Fair, will also be made. In addition, five runners-up will be flown to New York to visit the fair.

All educators in public and private educational institutions in the United States (except NEA officers and staff members) are eligible to submit ideas for the symbol. Entries must include a typewritten description and a rough sketch of a symbol, must be limited to one side of one sheet of 8½" x 11" paper, and must be identified with the name, address, and educational position of the entrant. Entries will be considered on the basis of the ideas they contain, not on the artistic quality of the sketch. Entries should be sent to Hall of Education, International Fair Consultants, Ten Columbus Circle, New York 19, on or before February 28, 1962. Entries will not be returned. # #

WILLIAM G. CARR, NEA Executive Secretary

The Teacher and the Professor

WE could greatly improve American education if we would all declare that, from bib and tucker to cap and gown, we should have a unified educational program in this country. "All waste," said John Dewey in a lecture nearly sixty years ago, "is due to isolation. Organization is nothing but getting things into connection with one another." If a supposedly impractical philosopher can see this and say it, why can't practical men act upon it?

There are many reasons why we do not now see our educational system as a single unit. Isolation is fostered, in the first place, by the barriers raised by habit and custom. A minor example of such a barrier is the vocabulary which usually reserves a special word, "professor," for the exclusive use of teachers in colleges and universities.

The multiple origins of the parts of our educational system constitute another factor which makes articulation difficult. The American university has roots that reach back to the Middle Ages. It is partly English in origin as far as the liberal arts college is concerned, partly German as far as the graduate school is concerned, partly French as far as the idea of a special program for preparing teachers is concerned. The American high school, on the other hand, is an American invention.

To the barriers arising from tradition, from vocabulary, and from the varied origins of our educational institutions must be added certain more recent developments which stress the necessity for articulation.

There is, first of all, what has been called the explosion of knowledge. As knowledge continues to expand in geometric progression, no waste of time can be afforded because of a lack of cooperation between the high schools and the colleges.

Second, there is the explosion of population. Together with substantial prosperity and a wider social acceptance of a longer period of formal education, this force brings added numbers to both schools and universities. Added numbers mean greater diversity. Greater diversity requires greater ingenuity in cooperative effort.

To the explosion of knowledge and the explosion of population, we might well add a third: the explosion of tempers. In these trying times, the difficulty of communication (even among friends and co-workers) is such that misunderstandings, recriminations, and consequent lack of cooperation are a constant danger.

One of the great and continuing problems of educational leadership therefore is to provide for a steady flow of intelligent and intelligible communication between the schools and colleges which will keep the explosions of tempers within the limits of tolerance and tolerability. We need, in James B. Conant's phrase, "a truce among educators." We need to end the distrust and indifference with which teachers now regard each other.

Public-school teachers say that too many college professors are too tightly swaddled in the bindings of their special disciplines; that they know nothing about the practical problems faced in the public schools; that they refuse to admit that these schools have some responsibility to many students who do not continue to college after graduation from high school; and that the college teachers regiment the students, treat them impersonally, counsel them inadequately, and fail to give them the intellectual stimulus they need.

On the other hand, many teachers in the colleges say that students reach them grotesquely unprepared in skills, attitudes, and knowledge basic to success in college. They find their students, they declare, deficient in the most rudimentary skills, careless and superficial in their habits of work, and lacking in seriousness and clarity of purpose.

THESE mutual criticisms are symptoms of poor articulation. It is time to try to suggest how we can ameliorate them.

Basically, of course, we have to school ourselves to think about American education in its totality. It

might help if we all desisted for a while from speaking about the "levels" of education. We tend to talk about the structure of American education as a sort of triple-deck layer cake, with the lower layers existing, not mainly for nutrition, but mainly to support the thin icing of graduate study on the very top. We might better form the habit of thinking of our educational system as a single, though complicated, mechanism, no part of which can run properly unless all do so together.

A unified approach to the financing of public education would also help. State colleges and state universities should be deeply concerned about the support of the elementary and secondary schools. The state education departments and the professional associations should be assiduous in developing public support for higher education. All these groups should support the expansion of adult education. Public desire to spend money for education is not so impetuous that we can afford the hazards of competitive and uncoordinated fiscal pleas from the several units of the school system.

Another necessity in achieving closer articulation is a more realistic development of curriculums in the secondary schools and colleges. Friction is the enemy of efficiency. If the professional people in the public schools and the colleges persist in regarding each other with hostility or indifference, friction is inevitable and loss of effectiveness in the education system will surely follow.

There are two remedies for friction. One of them is oil. Certainly, a little oil in the form of tolerance, kindly attitude, and even of more conciliatory speech might be useful in many situations. But a more fundamental means of reducing friction is to redesign the points of contact. This requires careful tooling and fitting, based on the consideration of responsibilities, both shared and unique, of the public schools and the higher institutions.

The Eight-Year Study proved conclusively, I think, that success in college does not depend on the study in high school of certain subjects for a certain period. But although the Eight-Year Study and other similar inquiries seem to have destroyed the theoretical basis for the arbitrary prescription of high school curriculums by college authorities, no satisfactory alternative theories have been evolved. As the contacts between college and university faculties and public-school faculties become more frequent, frank, and friendly, I feel sure that we shall perfect and apply such theories.

Still another important element in satisfying the need for better articulation is the development of understanding, respect, and confidence among all teachers. Three years ago the NEA began to call an annual summer conference of teachers from various college disciplines and representative teachers and administrators from the public schools. It has been encouraging to find how well such groups can work together once the opportunity and the challenge is offered.

There should be a continuation of this kind of interchange between the colleges and universities and the public schools. If teachers from all parts of the educational system could discard their feelings of professional inferiority and superiority, if they could overcome the divisive forces which render much of their efforts wasteful, incompetent, and unsuccessful, they could together, within a few years, greatly enhance not only the effectiveness of American education but also the level of public support for the enterprise and the attractiveness of teaching as an occupation.

The teaching profession can do this only if it is agreed on all sides that the proper criterion for any teacher is the welfare and progress of his students—whether small children in the kindergarten or graduate students in the university.

THOSE engaged in the preparation of teachers have an essential role to play in improving articulation. Such persons have, or should have, a foot in both camps. They are required, in order to perform their work successfully, to be in close touch with the needs and problems of the public schools—both elementary and secondary. They are also thrown into frequent and cooperative contact with other divisions of their colleges and universities. There has been much recent talk about *quality* in education. I believe that I first applied the word in its modern sense in July 1957. One conclusion emerges from the four years of self-examination since that time: The quality of education depends upon the quality of the preparation of the teachers. When you have placed a capable teacher in the classroom you have taken the final step that you can take in facilitating education. Everything else—the real estate, the masonry, the money, the equipment, the administration, the regulations, the paper work—is incidental. Only the teacher can make a classroom vibrant with life and inspired by inquiry or a drab experience to be escaped and forgotten as soon as possible.

NO one wishes to deny to any institution a broad freedom for purposeful variation, for controlled experimentation, for adjustment of program to meet local needs, regional circumstances, and other special problems. Yet, although there is no need to have a uniform national curriculum for the preparation of teachers, it is surely clear that most of the requisites for successful teaching are roughly the same anywhere in the United States and can be defined with a greater degree of unanimity and clarity than is the case at present.

The agencies concerned with the preparation of teachers should set up programs which will test the mettle of those who are preparing to enter the profession. They should encourage them to regard themselves as engaged in a single occupation (no matter what grade or age their students may have reached), and they should endeavor to develop this program as rapidly as is consistent with their resources.

It is in the institutions for the preparation of teachers that the cold war between the scholars in subject and the so-called professional educators takes its most wasteful and unnecessary forms. Most college teachers see the extension of knowledge as the primary cause of human progress. The teacher of education, on the other hand, thinks first of the transmission and application of knowledge.

Most college teachers give highest recognition to intellectual achievement. The teacher of education knows that human beings, including scholars, are moved to action not only by reason but also by ideals and attitudes.

Most college teachers feel that knowledge is most useful when it is organized in clear-cut categories. The teacher of education cannot get away from a conviction, which is founded on much good research, that young learners often take extremely important steps in learning when the boundaries between disciplines are disregarded. It would be idle, therefore, to deny that there are real differences of emphasis between the two groups.

I THINK most reasonable people would agree on four necessary ingredients in the preparation of teachers: a broad general education, expert knowledge in a field of instruction, mastery of teaching techniques, and knowledge of human growth and development. As to the precise components of the mixture, surely a reasonable agreement can be reached without continual recrimination.

Every teacher needs a good general education. Even at an early age children learn much from the cultural background (or lack of background) of their teacher. General education is needed to enable the teacher to feel at home in his world and in his own time, to deal surely with the wide range of topics which the eager minds of young people today bring forward in every classroom.

Every teacher should be an expert in one or more fields of instruction. This applies most obviously in the secondary schools and colleges, but I make no exception for the elementary schools.

It is true that it is not necessary to know calculus in order to teach the multiplication table. However, the teacher who dislikes mathematics and who does not perceive, in the simple relationships of numbers, implications for later studies, whose knowledge is bounded by a routine memorization from his own childhood, cannot be a professional teacher, even in beginning arithmetic. The teacher who is an expert is the teacher who is enthusiastic. And the teacher who is enthusiastic is the one who is most likely to be successful.

Certification requirements for teachers require that about one-fifth of their college time be devoted to the courses in education as a subject, including practice teaching. Practically all the public and professional appraisal of teacher education has been concentrated on this fraction. Yet surely we should look with at least equal care at the other four-fifths of the total preparation.

Prospective teachers do not require a preparation that is made easy, but a distinctive preparation that is made meaningful. All the college preparation of teachers (not just the pedagogical courses) should have such rigorous scrutiny as is necessary to clear away academic fancywork. Our primary concern should be not only the amount of time in this or that area but rather the quality of the preparation in all areas and in all subjects.

Every teacher should know the tools and methods used in teaching. The skills required for expert teaching cannot be picked up by casual observation. To expect them to be acquired on the job or by intuition or by common sense is like saying that a passenger who has flown a long way is qualified by experience and by common sense to replace the pilot.

Let us not be put in the place of arguing for techniques without scholarship or without general education. Indeed, there is another requirement: Every teacher should know children and adolescents, their characteristics, their growth patterns, and the deviations from those patterns.

IN such ways as these, or in other ways, we must bridge the gap between the branches of education. As long as this division occurs, the voice of education in national affairs is bound to be muted or ignored.

If we expect American education to have a voice in determining the policies of government affecting education, we must find a way to speak with a more nearly united voice than is now the case. If we expect the public to recognize the special competence of teachers, we must all stop telling the public that only a few categories of teachers have special competence and all the rest are amateurs, bunglers, and theorists. # #

PEANUTS
SO YOU REALLY LIKE YOUR TEACHER, EH, LINUS?
SHE'S A GOOD TEACHER, CHARLIE BROWN...NO, SHE'S MORE THAN JUST A GOOD TEACHER..SHE'S A GREAT HUMAN BEING!
NO, SHE'S MORE THAN A GOOD TEACHER AND A GREAT HUMAN BEING...
MISS OTHMAR IS A GOOD TEACHER, A GREAT HUMAN BEING AND A LIVING DOLL!!
SCHULZ

Reprinted from The Washington Post and Times Herald Cpr. 1959 by United Feature Syndicate, Inc.

Handicapped and normal children are

MORE ALIKE

RONNIE's legs are paralyzed, but he should not be thought of as a *crippled* child. He should be thought of as a *child* who is crippled. Although Joan cannot voice a single sentence in an easy flow of words, she should be described not as a stutterer, but rather as a little girl with a speech defect. Judd has been held back in the first grade for two years, but it is just as logical to point out that he is normal in many ways as to point to his retarded intellectual ability.

This realization that a child's handicap represents only a minority part of him reflects one of the noteworthy trends in the education of the handicapped which has occurred in the last half century. Now we understand also that the education of the handicapped child must be a continuing process because, like the normal child, he learns and acquires skills by his efforts day after day, year after year.

In the early stages of attempts to educate the handicapped, children were generally selected on a basis of easily recognized handicaps, with little attention to careful diagnosis of all their needs. They were usually placed in separate classes or schools. As a rule they remained in this isolated group for the duration of their educational program. Because of this policy of isolation and of special planning for these handicapped youngsters, the unfortunate term "special education" developed. Naturally enough, those who worked with normal children and those who worked with the handicapped moved in separate orbits.

Today, as an outcome of great expansion in special classes and in numbers of children enrolled in them across the nation, serious attention is being given to evaluating the relationships of regular and special education. Regular teachers are recognizing that since handicapping conditions in children differ in kind, degree, and multiplicity, the regular teacher must deal with important individual differences in any classroom. As a result, all education is improving, and the skills of those trained in certain grade levels and subject-matter fields are being shared with those who are trained in the understanding and methods of working with the handicapped.

Many states have established procedures for identifying their handicapped children. For example, as a result of legislation passed by the Illinois General Assembly in 1957, every school district in the state has evaluated its children through the cooperation of every county and district. Administrators, teachers, nurses, attendance personnel, and guidance staff participated. In consequence, there has been a great growth in numbers of special classes established and children enrolled, and better referral of children for special services.

Good referral procedures are important because hasty selection and assignment of handicapped children to special classes result in many errors of placement. Many children are wrongly assigned on the basis of a quick judgment that recognizes a noticeable handicap but neglects the total child. Often a child can be handled more adequately and appropriately in a regular class. On the other hand, the deep-seated but hidden problems of many children are not detected, with the result that such children do not receive the benefit of special education facilities.

It is easy to recognize the physical handicap of a child wearing a brace, but frustrations of a personal, emotional, and social nature may be overlooked. It is not hard to identify a blind child, but it takes careful study to evaluate his reading, studying, emotional, and social problems.

New Concepts at Work

Special teachers and other members of the school staff can cooperate fruitfully in many ways. In one school, for example, the whole staff got together to decide how to help two teen-age deaf boys who were not making satisfactory progress in a special class

THAN DIFFERENT

The teacher and the specialist, if they understand their respective roles, can be invaluable to each other in helping handicapped children.

RAY GRAHAM, director, Division of Special Education, Office of the Superintendent of Public Instruction, State of Illinois.

Reading (Pa.) School District Dept. of Public Relations Photo

for the handicapped. As a result, the boys went to a regular manual arts class for an hour each day. The special teacher briefed the regular teacher and the class and helped with problems of communication.

The boys were also given jobs in the school cafeteria, where the director and her staff helped with their training. In order to aid their social development, they were given other opportunities to be in contact with hearing persons. The activities in manual arts and in the cafeteria became the basis for speech and language development when they returned to their special class.

In another school, a team of regular faculty members helped children in a junior-high class for the mentally retarded who were having great difficulty in acquiring muscular coordination. The gym teacher gave the children various corrective exercises. The music teacher supplied a wealth of songs, records, rhythms, and music games to give motivation and enrichment. The art teacher helped design craft work within the abilities and limitations of the children.

Sometimes individual teachers who have had no previous experience with the handicapped can help entire classes of such children. One music teacher enlisted the aid of an industrial arts teacher in helping handicapped children make their own small xylophones. These children then learned rhythms and songs and became popular performers in the community.

Assembly programs, playground activities, safety patrols, corridor contacts, special programs, and many other activities have led to enriching experiences that aided not only youngsters with a handicap but all children in the school.

The Teacher and the Specialist

Any teacher is aware of most of the handicaps that children in his room may have. He is a trained observer of children and has a wealth of knowledge about them that is invaluable in supplementing the diagnostic studies of the psychologist and the physician. However, the regular teacher is frequently confronted with a large class and a demanding schedule. Often he lacks not only the time for individual planning and teaching but also the special training and skills for working to best advantage with handicapped children.

When the regular teacher has contact with children who have, say, speech irregularities and deficiencies, he is fortunate if he can collaborate with a speech correctionist. Just as the teacher is in the best position to guide the child's activities, study his personality, deal with his behavior problems, and check his academic progress, so is the speech correctionist best qualified to describe and prescribe for the children's defects in speech. The correctionist understands what to do to remedy the sound substitutions, the lisping, or the stuttering.

The teacher and the correctionist can be invaluable to each other in helping the child if they understand their respective roles. They must have time to exchange visits to each other's rooms in order to observe and discuss how they can best work together.

Placement Not a One-Time Operation

Placement of children with special problems also requires collaboration between regular and special staff members and is much more than a mere admin-

istrative decision. It must be based on proper identification and diagnosis. After the assignment, continuing appraisal is needed to evaluate the placement.

Once the handicapped child has been moved from a regular class into a special class, placement decisions still remain to be made, such as determining at a later time whether he has made sufficient progress under his special teacher to warrant his return to a regular class. Likewise, decisions remain to be made about whether children with undetected and less serious handicaps who were originally assigned to regular classes should be moved to a special class.

A child with a hearing defect, for example, may not be identified until his second year in school. Then the question arises as to whether his difficulty will interfere with normal progress to such an extent that he requires transfer to a special class.

One school listed some steps to take in attempting to place handicapped children advantageously in regular classes—a list any school might profitably use.

- Consider whether the child is socially and emotionally ready to go into a regular class. Can he adjust to a more competitive atmosphere and a larger group situation? Has he learned to accept his handicap and been able to develop a feeling of independence in spite of it?
- Carefully appraise the child's physical condition in light of the length of time he must spend in the regular classroom each day and his need for special rest periods or time out for therapy. Will he require assistance in going to the toilet? Can the class accept him with his handicapping condition?
- Consider classroom size and location. Will there be room for a wheel chair or special desk if needed? Is the classroom located on the first floor near an exit? If not, will the student be able to manage by himself in hallways and on stairs?
- Review the child's past school record in order to place him at the right grade level. What does his record indicate about his potentialities and his special learning problems?
- Give careful thought to the teacher's attitude and capabilities. Will he be willing to accept this further responsibility and to work with the handicapped pupil with warmth and patience? Does he have the creative qualities needed in designing an appropriate program for the child? Can he work with the child's former special teacher and other specialists to provide developmental experiences for him? Can he be relied upon to help the regular children understand, accept, and assist their handicapped classmate?

Team Effort Required

In the school designed to best serve all children, the administrator, the supervisor, the guidance counselor, the regular teacher, the special teacher, the nurse, the school social worker, and the psychologist are resources to each other. The effectiveness of each depends so much on the skills and cooperation of the others that modern education demands increased attention to policies for working together. # #

This fall more pupils are in school than ever before in the history of the United States. An estimated 49.3 million, more than one person in four of our total population, are now attending public or private elementary or secondary school or college. In the public elementary and secondary schools alone, an estimated 38.5 million are enrolled—28.9 million in kindergarten through grade 8 and 9.6 million in grades 9 through 12. Never before has the American public been asked to provide teachers, classrooms, equipment, and supplies for so large a number of children, and more children are just around the corner.

School-Age and Working-Age Population

Our school-age population, age 5-17 inclusive, is expected to increase 23.6 per cent from 1960 to 1970, in spite of declining school-age population in a few states. The K-8 age group, age 5-13 inclusive, is expected to increase by 17.1 per cent, and the age group 14-17 inclusive, by 42.7 per cent. The largest per cent of increase (56.6) is anticipated in the college-age group, age 18-21 inclusive. The age group, 22-64, that will provide the workers and taxpayers, and on whose shoulders the cost of education will rest, is expected to show the smallest per cent of increase of any population age group—only 12.2 per cent.

A comparison of the per cent of change in the different age groups by states from 1960 to 1970 is shown on the next page.

Enrollments—1965 and 1970

Projections of school-age population may be translated into school enrollments by a variety of procedures. Two methods have been selected. A conservative method of estimating future enrollment is to assume that the same per cent of the school-age population will be in school in the future as in the past. On this basis (let us call it assumption A) just under 41 million children will be enrolled in the public elementary and secondary schools in 1964-65 and 44.3 million in 1969-70.

Another method of estimating future public-school enrollment (assumption B) is to assume that 98 per cent of all children in the school-age category, 5-17, are capable of school attendance and that the same per cent of children will be in the nonpublic schools

LEROY J. PETERSON and WILLIAM H. CLEMENTS. Dr. Peterson, on leave from the University of Wisconsin, is director, Special Project on School Finance, NEA. Dr. Clements, professor of education at Wisconsin State College, Stevens Point, assisted with the project during the past summer.

More Children Around the Corner

in 1964-65 and 1969-70 as in 1959-60. After the 2 per cent uneducable children and the nonpublic-school enrollment have been subtracted, it is assumed the balance of the age 5-17 group constitutes the potential public-school enrollment. It is further assumed that 2 per cent of the eighth-grade pupils will not enter ninth grade and an additional 2 per cent will drop out during each year of high school.

On the basis of this assumption, 42.1 million pupils can be expected to be enrolled in the public elementary and secondary schools in 1964-65 and 45.4 million in 1969-70.

Instructional Staff Needed

In order to translate pupil enrollment into need for instructional staff, we must determine a pupil-staff ratio. In 1959-60, the pupil-staff ratio in the U.S. was 24.5:1. This ratio has been declining slowly, despite the fact that in recent years it has generally been increasing in states with a pupil-staff ratio of less than 21:1. Because of urban growth and school consolidation, the ratio is expected to level off. For the purpose of estimating future instructional staff needs, it is assumed that the ratio will be 24 pupils per instructional staff member in 1964-65 and continue at that level through 1969-70.

In 1959-60, 1,468,892 instructional staff members were employed. On the basis of our most conservative enrollment estimate (assumption A), 1,707,000 staff members will be needed in 1964-65 and 1,843,417 in 1970. On the basis of the second, less conservative estimate (assumption B), 1,752,500 instructional staff members will be needed in 1964-65 and 1,892,875 in 1969-70.

Of all instructional staff members in the U.S., 92.4 per cent were classroom teachers in 1959-60. If the same ratio prevails in 1964-65, 1,577,268 classroom teachers will be needed, and 1,703,317 will be needed by 1969-70—on the basis of the conservative assumption A. If assumption B is used, 1,619,310 classroom teachers will be needed in 1964-65 and 1,749,017 in 1969-70.

The number of classroom teachers employed in 1959-60 was 1,355,561. Thus by the most conservative

State	Per Cent of Change in Popula			
	5-13 (Elementary)	14-17 (High School)	18-21 (College)	22-64 (Work Force
Total U.S.	17.1	42.7	56.6	12.2
Ala.	—10.4	14.6	38.3	6.5
Alaska	57.3	82.8	68.5	45.6
Ariz.	35.6	71.2	104.7	49.1
Ark.	—28.5	—1.5	20.0	—11.4
Calif.	48.1	86.9	98.5	27.4
Colo.	30.7	50.1	74.0	22.8
Conn.	32.0	69.1	59.0	16.4
Del.	40.8	65.8	80.6	27.5
D.C.	9.1	31.0	51.4	—4.1
Fla.	43.1	79.9	96.3	41.4
Ga.	—0.5	24.4	52.6	13.3
Hawaii	10.9	38.9	51.7	20.0
Idaho	4.6	37.3	58.0	8.7
Ill.	22.8	49.0	58.2	9.0
Ind.	20.8	47.7	62.3	12.6
Iowa	4.9	23.5	40.3	—1.0
Kans.	14.9	31.8	53.1	8.4
Ky.	—12.0	10.0	36.6	1.8
La.	13.2	39.6	62.1	16.9
Maine	1.0	20.3	40.8	4.2
Md.	32.1	63.7	69.1	20.4
Mass.	14.7	38.7	44.8	3.5
Mich.	27.3	51.6	60.0	14.6
Minn.	17.2	40.2	55.6	6.7
Miss.	—15.7	7.8	29.5	—3.2

estimate, nearly 222,000 more teachers will be needed by 1964-65 and 348,000 more by 1970. By the alternate estimate, 263,749 more teachers will be needed in 1964-65 and 393,456 more by 1969-70.

Teacher Distribution

In 1959-60, approximately 61.5 per cent of all public-school classroom teachers taught elementary grades; 38.5 per cent taught secondary. However, a substantial number of school-age children will shift into the secondary-school age group within the next few years—a total of 4 per cent by 1969-70. If this same shift is reflected in the teaching staff, only about 57.5 per cent of teachers will be teaching elementary grades and 42.5 per cent will be teaching on the secondary level by 1970.

In addition, by 1970, a substantially larger number of teachers will be needed to teach gifted and handicapped children. Although data on teachers in special-education programs are not complete, information available indicates that the number increased from 14,000 in 1952-53 to over 36,000 in 1959-60. With the revitalized interest in helping all educable children to achieve their potential, the number of teachers in this area may rise to 100,000 by 1970. Even if this occurred, less than one-third of the children needing special programs would have them available.

Professional Qualifications

What will be the professional qualifications of the teachers manning the public schools in 1964-65 and in 1969-70?

Over the past several years, there has been some improvement in the professional quality of teachers in [illegible] be somewhat better qualified by both preparation and experience than present-day teachers.

Although no exact count is available, it is estimated that over 2300 of today's elementary- and secondary-school teachers have 5 years or more of college prep- cent of all secondary-school teachers and 15 per cent of all elementary-school teachers have a master's degree.

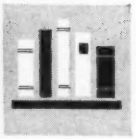
In 15 states, 20 per cent or more of all elementary-school teachers have 5 years or more of college preparation. Ninety-seven per cent of all secondary-school teachers and 75 per cent of all elementary-school teachers hold at least one degree. In 1959, 40 states required elementary-school teachers to hold a bachelor's degree before being certified to teach; all states except one required a degree for secondary-school teaching.

Men Teachers

Since the Civil War, the majority of teachers have been women. In 1943-44, during World War II, the per cent of men teachers dropped to 15.3 per cent of the total, a new low. Men now constitute about 29 per cent of all classroom teachers. Although only 14 per cent of all elementary-school teachers are men, over 51 per cent of all secondary-school teachers are men—the highest per cent of men teaching in U.S. secondary schools ever recorded.

In some states, only 1 elementary-school teacher in 20 is a man. In Oregon, the ratio is 1 in 3. In South Carolina and in the District of Columbia, only one-third of the teachers in secondary-schools are men. On the other hand, in Utah and Montana two-thirds are men. In elementary and secondary schools com- [illegible]

THE BOOKSHELF



Children's Books of 1960-61

This list was compiled for the joint committee of the NEA and the American Library Association by Mattie Ruth Moore, consultant in library service, Dallas Public Schools, and Siddie Joe Johnson, coordinator of children's services, Dallas Public Library.

Picture Story Books

In a Pumpkin Shell by Joan Walsh Anglund, illus. by author. Colorful ABC with a Mother Goose rhyme for every letter. 1960. 32p. Gr. K-3. Harcourt. $2.95.

Tamarindo! by Marcia Brown, illus. by author. Sicilian boys lose their clothes while swimming but find a missing donkey. 1960. 32p. Gr. 1-4. Scribner. $2.95.

The Happy Lion's Quest by Louise Fatio, illus. by Roger Duvoisin. The Happy Lion sets off to find his friend Francois in school. 1961. 32p. Gr. to a child's affections. 1960. 30p. Gr. K-3. Astor. $3.50.

I'm Hiding by Myra Cohn Livingston, illus. by Erik Blegvad. Poetic text and pictures tell all the places a child might love to hide. 1961. 32p. Gr. K-3. Harcourt. $1.95.

The Sun by Helga Mauersberger, illus. by Helmut Bischoff. Cockadoodle tells the story of sun and seasons in a striking picture book. 1961. 38p. Gr. 1-3. Watts. $3.95.

Little Bear's Visit by Else Holmelund Minarik, illus. by Maurice Sendak. The newest title is the best of the "I Can Read" series. 1961. 32 p. Gr. K-2. Harper. $1.95.

A B C by Bruno Munari, illus. by author. A beautiful ABC book. 1960. 18p. Gr. K-2. World. $3.50.

Caldecott Medal. 1960. 25p. Gr. K-4. Parnassus. $2.25.

Rabbit Garden by Georgia Tufts, illus. by author. Simple story and lovely design for a springtime theme. 1961. 32p. Gr. K-3. Lothrop. $2.75.

Let's Be Enemies by Janice May Udry, illus. by Maurice Sendak. John feuds with James—but decides to become friends again. Sendak drawings add to fun. 1961. 32p. Gr. K-3. Harper. $1.95.

Fairy Tales and Fantasy

Thumbelina by Hans Christian Andersen, illus. by Adrienne Adams. The Hans Andersen story in Adrienne Adams dress. 1961. 64p. Gr. 3-6. Scribner. $3.50.

Norwegian Folk Tales by Peter C. Asbjornsen and Jorgen Moe, illus. by Erik Werenskiold and Theodore Kittelsen. An unusually beautiful book. 1961. 189p. Gr. 4-7. Viking. $5.

The Little Juggler by Barbara Cooney, illus. by author. Barbara Cooney retells the medieval story of the boy "juggler to Our Lady." 1961. 48p. Gr. 4-6. Hastings. $3.

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Handicapped and normal children are
MORE ALIKE

RONNIE'S legs are paralyzed, but he should not be thought of as a *crippled* child. He should be thought of as a *child* who is crippled. Although Joan cannot voice a single sentence in an easy flow of words, she should be described not as a stutterer, but rather as a little girl with a speech defect. Judd has been held back in the first grade for two years, but it is just as logical to point out that he is normal in many ways as to point to his retarded intellectual ability.

This realization that a child's handicap represents only a minority part of him reflects one of the noteworthy trends in the education of the handicapped which has occurred in the last half century. Now we understand also that the education of the handicapped child must be a continuing process because, like the normal child, he learns and acquires skills by his efforts day after day, year after year.

In the early stages of attempts to educate the handicapped, children were generally selected on a basis of easily recognized handicaps, with little attention to careful diagnosis of all their needs. They were usually placed in separate classes or schools. As a rule they remained in this isolated group for the duration of their educational program. Because of this policy of isolation and of special planning for these handicapped youngsters, the unfortunate term "special education" developed. Naturally enough, those who worked with normal children and those who worked with the handicapped moved in separate orbits.

Today, as an outcome of great expansion in special classes and in numbers of children enrolled in them across the nation, serious attention is being given to evaluating the relationships of regular and special education. Regular teachers are recognizing that since handicapping conditions in children differ in kind, degree, and multiplicity, the regular teacher must deal with important individual differences in any classroom. As a result, all education is improving, and the skills of those trained in certain grade levels and subject-matter fields are being shared with those who are trained in the understanding and methods of working with the handicapped.

Many states have established procedures for identifying their handicapped children. For example, as a result of legislation passed by the Illinois General Assembly in 1957, every school district in the state has evaluated its children through the cooperation of every county and district. Administrators, teachers, nurses, attendance personnel, and guidance staff participated. In consequence, there has been a great growth in numbers of special classes established and children enrolled, and better referral of children for special services.

Good referral procedures are important because hasty selection and assignment of handicapped children to special classes result in many errors of placement. Many children are wrongly assigned on the basis of a quick judgment that recognizes a noticeable handicap but neglects the total child. Often a child can be handled more adequately and appropriately in a regular class. On the other hand, the deep-seated but hidden problems of many children are not detected, with the result that such children do not receive the benefit of special education facilities.

It is easy to recognize the physical handicap of a child wearing a brace, but frustrations of a personal, emotional, and social nature may be overlooked. It is not hard to identify a blind child, but it takes careful study to evaluate his reading, studying, emotional, and social problems.

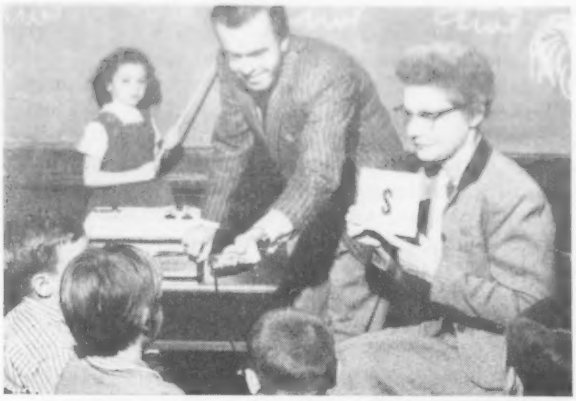
New Concepts at Work

Special teachers and other members of the school staff can cooperate fruitfully in many ways. In one school, for example, the whole staff got together to decide how to help two teen-age deaf boys who were not making satisfactory progress in a special class

THAN DIFFERENT

The teacher and the specialist, if they understand their respective roles, can be invaluable to each other in helping handicapped children.

RAY GRAHAM, director, Division of Special Education, Office of the Superintendent of Public Instruction, State of Illinois.



Reading (Pa.) School District Dept. of Public Relations Photo

for the handicapped. As a result, the boys went to a regular manual arts class for an hour each day. The special teacher briefed the regular teacher and the class and helped with problems of communication.

The boys were also given jobs in the school cafeteria, where the director and her staff helped with their training. In order to aid their social development, they were given other opportunities to be in contact with hearing persons. The activities in manual arts and in the cafeteria became the basis for speech and language development when they returned to their special class.

In another school, a team of regular faculty members helped children in a junior-high class for the mentally retarded who were having great difficulty in acquiring muscular coordination. The gym teacher gave the children various corrective exercises. The music teacher supplied a wealth of songs, records, rhythms, and music games to give motivation and enrichment. The art teacher helped design craft work within the abilities and limitations of the children.

Sometimes individual teachers who have had no previous experience with the handicapped can help entire classes of such children. One music teacher enlisted the aid of an industrial arts teacher in helping handicapped children make their own small xylophones. These children then learned rhythms and songs and became popular performers in the community.

Assembly programs, playground activities, safety patrols, corridor contacts, special programs, and many other activities have led to enriching experiences that aided not only youngsters with a handicap but all children in the school.

The Teacher and the Specialist

Any teacher is aware of most of the handicaps that children in his room may have. He is a trained observer of children and has a wealth of knowledge about them that is invaluable in supplementing the diagnostic studies of the psychologist and the physician. However, the regular teacher is frequently confronted with a large class and a demanding schedule. Often he lacks not only the time for individual planning and teaching but also the special training and skills for working to best advantage with handicapped children.

When the regular teacher has contact with children who have, say, speech irregularities and deficiencies, he is fortunate if he can collaborate with a speech correctionist. Just as the teacher is in the best position to guide the child's activities, study his personality, deal with his behavior problems, and check his academic progress, so is the speech correctionist best qualified to describe and prescribe for the children's defects in speech. The correctionist understands what to do to remedy the sound substitutions, the lisping, or the stuttering.

The teacher and the correctionist can be invaluable to each other in helping the child if they understand their respective roles. They must have time to exchange visits to each other's rooms in order to observe and discuss how they can best work together.

Placement Not a One-Time Operation

Placement of children with special problems also requires collaboration between regular and special staff members and is much more than a mere admin-

istrative decision. It must be based on proper identification and diagnosis. After the assignment, continuing appraisal is needed to evaluate the placement.

Once the handicapped child has been moved from a regular class into a special class, placement decisions still remain to be made, such as determining at a later time whether he has made sufficient progress under his special teacher to warrant his return to a regular class. Likewise, decisions remain to be made about whether children with undetected and less serious handicaps who were originally assigned to regular classes should be moved to a special class.

A child with a hearing defect, for example, may not be identified until his second year in school. Then the question arises as to whether his difficulty will interfere with normal progress to such an extent that he requires transfer to a special class.

One school listed some steps to take in attempting to place handicapped children advantageously in regular classes—a list any school might profitably use.

- Consider whether the child is socially and emotionally ready to go into a regular class. Can he adjust to a more competitive atmosphere and a larger group situation? Has he learned to accept his handicap and been able to develop a feeling of independence in spite of it?
- Carefully appraise the child's physical condition in light of the length of time he must spend in the regular classroom each day and his need for special rest periods or time out for therapy. Will he require assistance in going to the toilet? Can the class accept him with his handicapping condition?
- Consider classroom size and location. Will there be room for a wheel chair or special desk if needed? Is the classroom located on the first floor near an exit? If not, will the student be able to manage by himself in hallways and on stairs?
- Review the child's past school record in order to place him at the right grade level. What does his record indicate about his potentialities and his special learning problems?
- Give careful thought to the teacher's attitude and capabilities. Will he be willing to accept this further responsibility and to work with the handicapped pupil with warmth and patience? Does he have the creative qualities needed in designing an appropriate program for the child? Can he work with the child's former special teacher and other specialists to provide developmental experiences for him? Can he be relied upon to help the regular children understand, accept, and assist their handicapped classmate?

Team Effort Required

In the school designed to best serve all children, the administrator, the supervisor, the guidance counselor, the regular teacher, the special teacher, the nurse, the school social worker, and the psychologist are resources to each other. The effectiveness of each depends so much on the skills and cooperation of the others that modern education demands increased attention to policies for working together. # #

THIS fall more pupils are in school than ever before in the history of the United States. An estimated 49.3 million, more than one person in four of our total population, are now attending public or private elementary or secondary school or college. In the public elementary and secondary schools alone, an estimated 38.5 million are enrolled—28.9 million in kindergarten through grade 8 and 9.6 million in grades 9 through 12. Never before has the American public been asked to provide teachers, classrooms, equipment, and supplies for so large a number of children, and more children are just around the corner.

School-Age and Working-Age Population

Our school-age population, age 5-17 inclusive, is expected to increase 23.6 per cent from 1960 to 1970, in spite of declining school-age population in a few states. The K-8 age group, age 5-13 inclusive, is expected to increase by 17.1 per cent, and the age group 14-17 inclusive, by 42.7 per cent. The largest per cent of increase (56.6) is anticipated in the college-age group, age 18-21 inclusive. The age group, 22-64, that will provide the workers and taxpayers, and on whose shoulders the cost of education will rest, is expected to show the smallest per cent of increase of any population age group—only 12.2 per cent.

A comparison of the per cent of change in the different age groups by states from 1960 to 1970 is shown on the next page.

Enrollments—1965 and 1970

Projections of school-age population may be translated into school enrollments by a variety of procedures. Two methods have been selected. A conservative method of estimating future enrollment is to assume that the same per cent of the school-age population will be in school in the future as in the past. On this basis (let us call it assumption A) just under 41 million children will be enrolled in the public elementary and secondary schools in 1964-65 and 44.3 million in 1969-70.

Another method of estimating future public-school enrollment (assumption B) is to assume that 98 per cent of all children in the school-age category, 5-17, are capable of school attendance and that the same per cent of children will be in the nonpublic schools

LEROY J. PETERSON and WILLIAM H. CLEMENTS. Dr. Peterson, on leave from the University of Wisconsin, is director, Special Project on School Finance, NEA. Dr. Clements, professor of education at Wisconsin State College, Stevens Point, assisted with the project during the past summer.

More Children Around the Corner

in 1964-65 and 1969-70 as in 1959-60. After the 2 per cent uneducable children and the nonpublic-school enrollment have been subtracted, it is assumed the balance of the age 5-17 group constitutes the potential public-school enrollment. It is further assumed that 2 per cent of the eighth-grade pupils will not enter ninth grade and an additional 2 per cent will drop out during each year of high school.

On the basis of this assumption, 42.1 million pupils can be expected to be enrolled in the public elementary and secondary schools in 1964-65 and 45.4 million in 1969-70.

Instructional Staff Needed

In order to translate pupil enrollment into need for instructional staff, we must determine a pupil-staff ratio. In 1959-60, the pupil-staff ratio in the U.S. was 24.5:1. This ratio has been declining slowly, despite the fact that in recent years it has generally been increasing in states with a pupil-staff ratio of less than 21:1. Because of urban growth and school consolidation, the ratio is expected to level off. For the purpose of estimating future instructional staff needs, it is assumed that the ratio will be 24 pupils per instructional staff member in 1964-65 and continue at that level through 1969-70.

In 1959-60, 1,468,892 instructional staff members were employed. On the basis of our most conservative enrollment estimate (assumption A), 1,707,000 staff members will be needed in 1964-65 and 1,843,417 in 1970. On the basis of the second, less conservative estimate (assumption B), 1,752,500 instructional staff members will be needed in 1964-65 and 1,892,875 in 1969-70.

Of all instructional staff members in the U.S., 92.4 per cent were classroom teachers in 1959-60. If the same ratio prevails in 1964-65, 1,577,268 classroom teachers will be needed, and 1,703,317 will be needed by 1969-70—on the basis of the conservative assumption A. If assumption B is used, 1,619,310 classroom teachers will be needed in 1964-65 and 1,749,017 in 1969-70.

The number of classroom teachers employed in 1959-60 was 1,355,561. Thus by the most conservative

Per Cent of Change in Population by Age Groups, 1960 to 1970

State	5-13 (Elementary)	14-17 (High School)	18-21 (College)	22-64 (Work Force)	State	5-13 (Elementary)	14-17 (High School)	18-21 (College)	22-64 (Work Force)
Total U.S.	17.1	42.7	56.6	12.2	Mo.	8.1	27.5	51.7	4.1
Ala.	—10.4	14.6	38.3	6.5	Mont.	14.8	43.1	59.9	6.6
Alaska	57.3	82.8	68.5	43.6	Nebr.	6.7	17.9	34.1	—0.2
Ariz.	35.6	71.2	104.7	49.1	Nev.	51.5	96.2	124.1	46.1
Ark.	—28.5	—1.5	20.0	—11.4	N. H.	16.1	33.8	52.5	9.4
Calif.	48.1	86.9	98.5	27.4	N. J.	32.4	61.8	53.1	15.6
Colo.	30.7	50.1	74.0	22.8	N. Mex.	24.1	46.0	77.7	37.1
Conn.	32.0	69.1	59.0	16.4	N. Y.	18.4	44.8	45.4	5.8
Del.	40.8	65.8	80.6	27.5	N. C.	—6.5	18.4	43.9	11.2
D.C.	9.1	31.0	51.4	—4.1	N. Dak.	—6.3	13.0	24.6	—1.9
Fla.	43.1	79.9	96.3	41.4	Ohio	29.9	52.9	68.5	13.8
Ga.	—0.5	24.4	52.6	13.3	Okla.	—12.0	10.2	38.2	1.8
Hawaii	10.9	38.9	51.7	20.0	Oreg.	16.9	50.1	57.7	4.6
Idaho	4.6	37.3	58.0	8.7	Pa.	6.9	29.3	32.8	3.4
Ill.	22.8	49.0	58.2	9.0	R. I.	12.0	35.2	40.8	1.0
Ind.	20.8	47.7	62.3	12.6	S. C.	—8.3	23.7	55.9	11.4
Iowa	4.9	23.5	40.3	—1.0	S. Dak.	2.7	14.0	29.8	—3.3
Kans.	14.9	31.8	53.1	8.4	Tenn.	—6.4	18.9	41.6	6.5
Ky.	—12.0	10.0	36.6	1.8	Tex.	18.8	40.8	58.6	18.8
La.	13.2	39.6	62.1	16.9	Utah	20.8	46.1	76.9	24.2
Maine	1.0	20.3	40.8	4.2	Vt.	—0.7	23.4	39.9	—0.2
Md.	32.1	63.7	69.1	20.4	Va.	8.0	35.7	52.7	15.4
Mass.	14.7	38.7	44.8	3.5	Wash.	24.3	58.6	53.4	10.6
Mich.	27.3	51.6	60.0	14.6	W. Va.	—24.3	—1.0	8.2	—10.8
Minn.	17.2	40.2	55.6	6.7	Wis.	18.1	37.5	54.1	8.8
Miss.	—15.7	7.8	29.5	—3.2	Wyo.	15.9	40.5	22.9	10.4

estimate, nearly 222,000 more teachers will be needed by 1964-65 and 348,000 more by 1970. By the alternate estimate, 263,749 more teachers will be needed in 1964-65 and 393,456 more by 1969-70.

Teacher Distribution

In 1959-60, approximately 61.5 per cent of all public-school classroom teachers taught elementary grades; 38.5 per cent taught secondary. However, a substantial number of school-age children will shift into the secondary-school age group within the next few years—a total of 4 per cent by 1969-70. If this same shift is reflected in the teaching staff, only about 57.5 per cent of teachers will be teaching elementary grades and 42.5 per cent will be teaching on the secondary level by 1970.

In addition, by 1970, a substantially larger number of teachers will be needed to teach gifted and handicapped children. Although data on teachers in special-education programs are not complete, information available indicates that the number increased from 14,000 in 1952-53 to over 36,000 in 1959-60. With the revitalized interest in helping all educable children to achieve their potential, the number of teachers in this area may rise to 100,000 by 1970. Even if this occurred, less than one-third of the children needing special programs would have them available.

Professional Qualifications

What will be the professional qualifications of the teachers manning the public schools in 1964-65 and in 1969-70?

Over the past several years, there has been some improvement in the professional quality of teachers in spite of the pressure for quantity. If this trend continues, teachers in 1964-65 and in 1969-70 will be somewhat better qualified by both preparation and experience than present-day teachers.

Although no exact count is available, it is estimated that over 2300 of today's elementary- and secondary-school teachers have 5 years or more of college prepcent of all secondary-school teachers and 15 per cent of all elementary-school teachers have a master's degree.

In 15 states, 20 per cent or more of all elementary-school teachers have 5 years or more of college preparation. Ninety-seven per cent of all secondary-school teachers and 75 per cent of all elementary-school teachers hold at least one degree. In 1959, 40 states required elementary-school teachers to hold a bachelor's degree before being certified to teach; all states except one required a degree for secondary-school teaching.

Men Teachers

Since the Civil War, the majority of teachers have been women. In 1943-44, during World War II, the per cent of men teachers dropped to 15.3 per cent of the total, a new low. Men now constitute about 29 per cent of all classroom teachers. Although only 14 per cent of all elementary-school teachers are men, over 51 per cent of all secondary-school teachers are men—the highest per cent of men teaching in U.S. secondary schools ever recorded.

In some states, only 1 elementary-school teacher in 20 is a man. In Oregon, the ratio is 1 in 3. In South Carolina and in the District of Columbia, only one-third of the teachers in secondary-schools are men. On the other hand, in Utah and Montana two-thirds are men. In elementary and secondary schools combined, Oregon has the highest per cent of men teachers—over 40 per cent. Although the *proportion* of men is increasing, the total *number* of women teachers is at an all-time high.

Teaching Experience

The average U.S. teacher in 1959-60 had 13.6 years of teaching experience. Elementary-school teachers averaged 14 years; secondary-school teachers, 13 years. In years of experience of its elementary-school teachers, the District of Columbia was at the bottom—9.9 years on the average; Pennsylvania was at the top—18 years on the average. Average experience of secondary-school teachers ranged from 9.6 years in Colorado to 17 years in Rhode Island.

The trend toward a higher average experience continues despite the large number entering the teaching profession in the past decade.

Continued Improvement Needed

People interested in public education are facing a constant battle to maintain and improve quality. Increasing numbers of pupils enrolled and teachers needed will make continuous improvement in quality difficult. In spite of problems and difficulties, education has improved with each succeeding decade. The 1960's must not be an exception. # #

THE BOOKSHELF

Children's Books of 1960-61

THIS list was compiled for the joint committee of the NEA and the American Library Association by Mattie Ruth Moore, consultant in library service, Dallas Public Schools, and Siddie Joe Johnson, coordinator of children's services, Dallas Public Library.

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In a Pumpkin Shell by Joan Walsh Anglund, illus. by author. Colorful ABC with a Mother Goose rhyme for every letter. 1960. 32p. Gr. K-3. Harcourt. $2.95.

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The Happy Lion's Quest by Louise Fatio, illus. by Roger Duvoisin. The Happy Lion sets off to find his friend Francois in school. 1961. 32p. Gr. K-3. McGraw. $2.50.

La Nieve y el Sol by Antonio Frasconi, illus. by author. *The Snow and the Sun* is a stunning picture book in Spanish and English. 1961. 30p. Gr. K-4. Harcourt. $3.

The Tidy Hen by Anthony Groves-Raines, illus. by author. A little jewel of a book, glowing and full of fun. 1961. 32p. Gr. K-3. Harcourt. $2.75.

Bedtime for Frances by Russell Hoban, illus. by Garth Williams. The sleepy small animal is like a human baby, cuddly and sweet. 1960. 32p. Gr. K-3. Harper. $2.75.

There Is a Dragon in My Bed by Sesyle Joslin and Irene Haas, illus. by Irene Haas. French phrases that *might* be useful but are *certainly* amusing. 1961. 61p. Gr. K-3. Harcourt. $2.25.

The Swapping Boy by John Langstaff, illus. by Beth and Joe Krush. An old folk song made into a gay and lively picture book. 1960. 32p. Gr. K-4. Harcourt. $2.95.

Inch By Inch by Leo Lionni, illus. by author. An inchworm inches—or worms—his way through high art to a child's affections. 1960. 30p. Gr. K-3. Astor. $3.50.

I'm Hiding by Myra Cohn Livingston, illus. by Erik Blegvad. Poetic text and pictures tell all the places a child might love to hide. 1961. 32p. Gr. K-3. Harcourt. $1.95.

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A B C by Bruno Munari, illus. by author. A beautiful ABC book. 1960. 48p. Gr. K-2. World. $3.50.

Baboushka and the Kings by Ruth Robbins, illus. by Nicholas Sidjakov. Traditional story of the old woman and the Magi. Illustrations won the Caldecott Medal. 1960. 25p. Gr. K-4. Parnassus. $2.25.

This poster, in full color, may be obtained from Children's Book Council, Inc., 175 Fifth Ave., New York 10. 17"x22". 40¢ each. Quantity discounts.

Rabbit Garden by Georgia Tufts, illus. by author. Simple story and lovely design for a springtime theme. 1961. 32p. Gr. K-3. Lothrop. $2.75.

Let's Be Enemies by Janice May Udry, illus. by Maurice Sendak. John feuds with James—but decides to become friends again. Sendak drawings add to fun. 1961. 32p. Gr. K-3. Harper. $1.95.

Fairy Tales and Fantasy

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Norwegian Folk Tales by Peter C. Asbjornsen and Jorgen Moe, illus. by Erik Werenskiold and Theodore Kittelsen. An unusually beautiful book. 1961. 189p. Gr. 4-7. Viking. $5.

The Little Juggler by Barbara Cooney, illus. by author. Barbara Cooney retells the medieval story of the boy "juggler to Our Lady." 1961. 48p. Gr. 4-6. Hastings. $3.

Rapunzel by The Brothers Grimm, illus. by Felix Hoffman. A glorious picture book of the old fairy tale. 1961. 35p. Gr. 3-6. Harcourt. $3.75.

The Shoemaker and the Elves by The Brothers Grimm, illus. by Adrienne Adams. Adrienne Adams' drawings are just right for this fairy tale. 1960. 32p. Gr. 3-6. Scribner. $2.95.

Dwarf Long-Nose by Wilhelm Hauff, illus. by Maurice Sendak. A German story of enchantment. 1960. 63p. Gr. 4-6. Random. $2.95.

Perrault's Complete Fairy Tales translated from the French by A. E. Johnson and others. Illus. by W. Heath Robinson. An attractive format characterizes this important collection. 1961. 183p. Gr. 4-6. Dodd. $3.50.

Heather and Broom, Tales of the Scottish Highlands by Sorche Nic Leodhas, illus. by Consuela Joerns. Excellent for storytelling and for reading aloud. 1960. 128p. Gr. 5-7, Holt. $3.25.

Stories

The Robber Ghost by Karin Anckarsvard, illus. by Paul Galdone. Twelve-year-olds solve a mystery in a Swedish school. Excellent characterization. 1961 188p. Gr. 6-8. Harcourt. $3.25.

The World of the Pharaohs by Hans Baumann, illus. by Albert Burges and Hans Peter Renner. A thirteen-year-old boy becomes interested in archeology in Egypt. Dis-

tinguished illustrations. 1960. 255p. Gr. 7-9. Pantheon. $4.

Threshold of the Stars by Paul Berna, illus. by Geraldine Spence. A tremendous story of boys on an isolated space-ship base. 1960. 176p. Gr. 5-7. Abelard. $2.75.

A Bear Called Paddington by Michael Bond, illus. by Peggy Fortnum. The bear "from darkest Peru" finds life in London exciting. 1960. 128p. Gr. 4-6. Houghton. $2.50.

The Incredible Journey by Sheila Burnford, illus. by Carl Burger. Outstanding account of an "incredible journey" made by dogs and a Siamese cat. 1961. 145p. Gr. 5-9. Little. $3.75.

The Song of the Lop-Eared Mule by Natalie Savage Carlson, illus. by Janina Domanska. A runaway mule finds adventure in southern Spain. 1961. 96p. Gr. 3-6. Harper. $2.75.

Devils' Hill by Nan Chauncy, illus. by Geraldine Spence. Story of rural Tasmania and the boy, Badge. Excellent for background and family life. 1960. 159p. Gr. 5-7. Watts. $2.95.

By Marvelous Agreement by Dola de Jong. A Dutch girl brings into focus the problems of a Martha's Vineyard teen-age crowd. 1960. 211p. Gr. 7-9. Knopf. $2.95.

The Singing Cave by Ellis Dillon, illus. by Stan Campbell. Two Irish boys discover an armored Viking in a mysteriously singing cave. 1960. 186p. Gr. 6-8. Funk. $2.95.

Return to Gone-Away by Elizabeth Enright, illus. by Beth and Joe Krush. Story of the Blakes' return to Gone-Away Lake. 1961. 191 p. Gr. 5-7. Harcourt. $3.25.

The Witch Family by Eleanor Estes, illus. by Edward Ardizzone. Two little girls discover a witch family on a glass hill. 1960. 186p. Gr. 4-6. Harcourt. $3.25.

Brady by Jean Fritz, illus. by Lynd Ward. A boy learns to keep important secrets in runaway-slave days. 1960. 223p. Gr. 5-7. Coward. $3.50.

Miss Happiness and Miss Flower by Rumer Godden, illus. by Jean Primrose. Two Japanese dolls find happiness—and a Japanese dolls' house. Directions for making house. 1961. 82p. Gr. 3-6. Viking. $3.

Grishka and the Bear by Rene Guillot, illus. by Joan Kiddell-Monroe. A tale heard in Siberia about a boy and his life among the bears. 1960. 116p. Gr. 5-7. Criterion. $2.75.

Gaudenzia, Pride of the Palio by Marguerite Henry. Giorgio rides Gaudenzia to victory in Italy's great race, the Palio. 1960. 237p. Gr. 5-9. Rand. $3.95.

The Bearcat by Annabel and Edgar Johnson. Early mining days in Montana—the boy Jeff—beginnings of organized labor. Dramatic and perceptive. 1960. 213p. Gr. 7-9. Harper. $2.95.

Meet the Austins by Madeleine L'Engle. Outstanding family story told by a twelve-year-old daughter. 1960. 191p. Gr. 5-8. Vanguard. $3.

The Golden Goblet by Eloise Jarvis McGraw. Ancient Egypt is background for this tale of tomb robbing and the goldsmith's craft. 1961. 248p. Gr. 7-9. Coward. $3.50.

The Blue Boat by William Mayne, illus. by Geraldine Spence. Reality and make-believe blend as two English boys find adventure during a summer holiday. 1960. 192p. Gr. 5-7. Dutton. $2.95.

The Secret Language by Ursula Nordstrom, illus. by Mary Chalmers. Two little girls at boarding school find a secret language and friendship. 1960. 167p. Gr. 4-6. Harper. $2.75.

Old Ramon by Jack Schaefer, illus. by Harold West. An old shepherd shares his wisdom with a young one in this story of the Southwest. 1960. 102p. Gr. 6-9. Houghton. $2.50.

The Cricket in Times Square by George Selden, illus. by Garth Williams. A country cricket invades Times Square and fantasy follows—both tough and tender. 1960. 151p. Gr. 4-7. Farrar. $3.50.

Knight's Fee by Rosemary Sutcliff, illus. by Charles Keeping. A beautifully told story of friendship in early Norman England. 1960. 241p. Gr. 7-9. Walck. $3.50.

Quiet Boy by Lela and Rufus Waltrip, illus. by Theresa Kalab Smith. Quiet Boy reconciles the way of the white man with the traditions of the Navajo. 1961. 120p. Gr. 4-7. Longmans. $2.95.

Poppy in the Corn by Stella Weaver. A war orphan changes the lives of an English family. Distinguished. 1961. 319p. Gr. 6-8. Pantheon. $3.50.

The Golden Footprints by Taro Yashima and Hatoju Muku, illus. by Taro Yashima. A Japanese story of foxes and a boy. Beautifully told and illustrated. 1960. 56p. Gr. 3-6. World. $2.95.

Special Interests

Words from the Myths by Isaac Asimov, illus. by William Barss. Helpful to those reading mythology—and to all who love words. 1961. 224p. Gr. 7-9. Houghton. $3.

Map Making: The Art That Became a Science by Lloyd Brown. History of map making. A handsome book and winner of Boys' Club of America Award. 1960. 217p. Gr. 7-9. Little. $4.75.

The Sleeping Beauty by Warren Chappell. Perrault fairy tale, Tschaikovsky ballet, Chappell adaptation and illustration. A must. 32p. 1961. Gr. 3-7. Knopf. $2.95.

I Met a Man by John Ciardi. A fine modern poet writes amusing verse for the young. 1961. 80p. Gr. 2-5. Houghton. $2.75.

Challenge of the Sea by Arthur Clarke, illus. by Alex Schomberg. The author sees the sea as the answer to many problems. Emphasis on skin diving. 1960. 167p. Gr. 7-9. Holt. $3.95.

The American Speller, An Adaptation of Noah Webster's Blue Backed Speller, illus. by Barbara Cooney. One of the year's most charming books. Helpful to would-be spellers. 1960. 79p. Gr. 1-5. Crowell. $2.95.

The Strange World of Animal Sense by Margaret Cosgrove, illus. by author. How the world may look, sound, taste, smell, and feel to animals, birds, insects, etc. 1961. 95p. Gr. 4-6. Dodd. $3.

Stories from the Bible by Walter de la Mare, illus. by Edward Ardizzone. Attractive format and the de la Mare retelling of the stories make this outstanding. 1961. 422p. All ages. Knopf. $4.50.

New Book of Days by Eleanor Farjeon, illus. by Philip Gough and M. W. Hawes. Poems, stories, customs for days of the year. A beautiful book from a great author. 1961. 400p. Gr. 1-9. Walck. $4.50.

America Moves Forward, a History for Peter by Gerald W. Johnson, illus. by Leonard Everett Fisher. Last volume of a distinguished American history trilogy. 1960. 256p. Gr. 5-8. Morrow. $3.95.

When I Was a Boy by Erich Kastner, illus. by Horst Lemke. This story of a German writer's boyhood is the winner of International Hans Christian Andersen Award. 1961. 187p. Gr. 5-9. Watts. $3.95.

A Bundle of Ballads compiled by Ruth Manning-Sanders, illus. by William Stabbs. Collection of unfamiliar ballads—some about Robin Hood. Charming format. 1961. 237p. Gr. 4-9. Lippincott. $3.

The Iliad of Homer by Barbara Picard, illus. by Joan Kiddell-Monroe. This stands up well with Church's and Colum's retelling of the Iliad. A handsome edition. 1960. 208p. Gr. 7-9. Walck. $3.50. # #

Student NEA

Q.—What is the Student NEA?

A.—The professional association for college and university students actively preparing to teach. The organization is an outgrowth of the Future Teachers of America movement, which developed out of the Horace Mann Centennial in 1937. In 1955, administration of the National Association of Future Teachers of America was transferred from the NEA JOURNAL staff, where it had been under the leadership of its founder, Joy Elmer Morgan, to the NEA's National Commission on Teacher Education and Professional Standards. Student NEA now has 840 local units of 72,000 members.

Q.—Who can belong to this association?

A.—Any student enrolled in a teacher education program in a properly accredited college or university. However, he must join through a chartered student education association in his school.

Q.—Do Student NEA members belong to the NEA?

A.—They belong to duly chartered local college or university units, to their state education association (as student members), and to the national association with all the rights, privileges, and responsibilities of associate membership. The Student NEA program is an integral part of the NEA program, administered by NCTEPS.

Q.—What is the difference between Student NEA and the Future Teachers of America clubs?

A.—Student NEA is for college students *preparing* to teach; FTA clubs are for high-school students *exploring* teaching as a career.

Q.—What is the purpose of the Student NEA?

A.—To provide the opportunities to members for (a) personal and professional growth; (b) development of leadership skills; (c) an understanding of the history, ethics, and programs of the NEA; and (d) participation in professional activities at local, state, and national levels. The student associations derive additional professional experiences by holding their own conferences, conventions, and workshops; putting out their own publications; and carrying on various professional activities, including work with FTA clubs.

Q.—Does the Student NEA have its own national officers?

A.—Yes: a president, three vice-presidents, secretary, historian, and parliamentarian.

Q.—How is the program financed?

A.—NEA provides funds to operate the program at the national level—a sum considerably larger than the annual student dues collected. Revenues from the program are treated as general NEA revenue and are not administered as separate funds. At the state level, financial support of the program is included in the annual planning and budget of the state education association.

Q.—What is the relationship between Student NEA and the state education association?

A.—Student education associations are jointly chartered by the NEA and the state education association. They are basic units of the student state education association. A staff member of the state education association usually serves as liaison between the Student NEA, the state association, its departments, the state TEPS commission, and other related groups.

Q.—What are some of the first steps prospective members should take in organizing a local unit?

A.—They should initiate the formalities necessary to secure a Student NEA charter jointly from the NEA and the state education association; request a *Student NEA Promotion Packet* from their state education association or from NEA; enlist the support of the school administrator in charge of teacher education; and persuade interested faculty members to act as advisers.

Q.—Where are the headquarters and staff of the Student NEA located?

A.—In the NEA Center, 1201 Sixteenth Street, N.W., Washington 6, D.C.

Q.—What are the membership dues?

A.—Student individual annual dues are $1; student state education dues and local dues are additional. All three are collected at one time and called unified dues.

Q.—What NEA services are available to Student NEA members?

A.—The NEA makes available basic tools to assist in the year's program, such as *NEA Handbook*; *Student NEA Handbook*; *NEA Journal, NEA News, TEPS Newsletter, The Journal of Teacher Education,* Student NEA posters, American Education Week and Teaching Career Month materials, NEA Citizenship Committee materials; consultative services, such as speakers and consultants, answers to written requests for information and materials from NEA Research and Membership Divisions, from NEA committees, commissions, and departments; information on current news and trends; annual national and regional NEA, NCTEPS, and Student NEA conventions and conferences; and participation in NEA's plan for voluntary life insurance. # #

TEACHERS' TRADING POST

Prepositions are nonsense up with which students will put, Dori Weisberg finds, when she uses a nonsensical but motivational approach. She induced her eighth graders in the Cornell University (Ithaca, New York) Junior High School Project to sing variations of the familiar song, "You Can't Get to Heaven." Passing up roller skates and the other means of transportation, pupils explored possibilities of getting to heaven "on a barrel," "in a barrel," "inside a barrel," "next to a barrel," "between two barrels," "among the barrels," and "through the barrel."

Introduced to most of the prepositions by this method, members of the class composed original verses, using different prepositions. They grew skillful at identifying prepositions, objects of prepositions, and prepositional phrases. Objective test results verified the success of the unorthodox approach.

Here is a teacher who uses an old but tried-and-true method to discourage inattentiveness in her Latin classes. Winifred J. Shannon of Lisle (Illinois) Community High School doesn't reprimand a student when he is talking or not paying attention; she catches him off guard with a question. He usually has to ask her to repeat the question and blushes when the other members of the class laugh. She does not like to embarrass any student but finds her technique an effective way of holding attention.

Keep parents informed if you want to keep them interested says Elna A. March, fourth-grade teacher in Central Elementary School, Haines City, Florida. Each month the children take home a mimeographed classroom newspaper full of their poems, stories, and reports on current projects. Sprighdy news items (written by the pupils) acquaint parents with school health and safety activities, the cafeteria, and patrol programs.

A post-office unit which teaches second graders in San Ysidro's Sunset School, California, how to write, address, and mail letters, has won the blessing and help of the town's postal officials. Under teacher Leota Neely's supervision, pupils build and operate their own classroom post office—complete with letter boxes, postmaster, clerk, and mail carrier—subject to inspection by San Ysidro's postmaster or his assistant.

Pupils establish "residence" by giving street names to classroom aisles and street numbers to their desks. Then they write and mail letters to each other. If a letter is not correctly addressed, the alert "post-office staff" returns it to the writer, whose peers point out the errors.

Who isn't interested in making money—even if the procedure is only an exciting way of learning to add and subtract and even if the "money" is nonnegotiable slips of paper? James Prins of Peoria (Arizona) Public Schools has found it a good teaching procedure to let his eighth-grade mathematics classes set up a stock market, buy and sell stocks, and form corporations with sales directors. Students have to be alert to figure gains or losses as the selling price of shares goes up and down in an unpredictable market controlled by the instructor.

Inspired by the March **NEA Journal's** ***creativity feature to trade ideas is Louise H. Coulon, teacher of fifty-six kindergartners—double session—in the Belvedere (California) School.*** She feels it is never too early to encourage some form of creative expression. The children tell her stories about their drawings which she writes down in her own form of shorthand and later types in full.

Some of the children are eager to talk about their pictures while others shyly volunteer information. Many tell their stories in short, descriptive sentences; a few tell a charming and readable tale; occasionally, a child rhymes his lines so that a poem results.

With permission of the authors, the teacher reads these stories to the class—an appreciative audience. The

(Continued on page 63)

NEA QUIZ

So you think you know your NEA. How many of the statements below can you complete correctly?

1. The 1961 NEA Representative Assembly approved a proposal to require a bachelor's degree and eligibility for a teaching certificate of all new NEA members after

a. January 1, 1962
b. December 31, 1963
c. August 31, 1964.

2. More than 700 conferences, committee meetings, and public sessions are held in the NEA Center each year, involving at least

a. 15,000
b. 12,000
c. 18,000

NEA members.

3. Approximately 90 per cent of NEA's financial support comes from

a. membership dues
b. sales of publications and convention exhibits
c. advertising in the **NEA Journal.**

4. Largely through the work of NEA, the Mason Bill was passed by Congress in 1954 granting substantial reductions in federal taxes paid by teachers

a. on retirement income
b. on summer school costs as business expenses
c. on transportation costs in commuting between home and job.

5. Since the NEA expanded program was approved in 1957, an Editorial Information Center has been established in

a. Chicago
b. Washington, D.C.
c. New York

to increase and improve the coverage of education by magazines and newspapers, and by radio and TV.

6. An NEA resolution recommends that every educational system guarantee all its teachers equality with other citizens in the exercise of their political rights and responsibilities in

a. voting
b. campaigning for candidates
c. running for and serving in public office.

Answers: 1-c, 2-a, 3-a, 4-a, 5-c, 6-all three.

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OUR READERS WRITE

(Continued from page 6)

DR. Hanson's point about the need for continuing education for married teen-agers is well taken.

—DICK SNIDER, *La Grande, Oreg.*

. . . a sensible approach to one of the time's genuine problems.

—Durham *(N.C.)* Morning Herald.

Enjoyed the Assignment

THANKS for publishing the feature on assignments in September. The Van Til article on "How *Not* to Make an Assignment" will be especially helpful in my work as a supervisor of student teachers. This problem turns up every term.

—VIRGINIA GOLDSMITH, *Kirkland, Wash.*

I PLAN to use this article in my methods classes.

—RALPH CUNNINGHAM, *associate professor of education, Concord College, Athens, West Va.*

I WISH there were some way for all public librarians to receive this excellent feature, for they deal constantly with students trying to carry out assignments. Just as the articles will help teachers improve their assignment practices, so would they help librarians understand better what teachers are trying to accomplish through assignments.

—MARY V. GAVER, *professor, Graduate School of Library Service, Rutgers, The State University, New Brunswick, N.J.*

Stop! Don't Mix Safety Signs!

As a driver-training instructor, I was happy to see a cartoon related to my field in your May 1960 issue. However, the artist made a serious mistake: An eight-sided shape is always used for a stop sign. When slow driving is cautioned, the sign is usually diamond-shaped. The two shapes should never be confused or used interchangeably.

—HARVEY E. GYGI, *Driver Training Institute, Washington High School, New London, Wis.*

For the Record

RECORDING information about pupils has become a time-consuming, paper-eating monster! Here is an actual record for one year taken by a second-grade teacher in a small-town school:

Checking workbooks for thirty pupils: 150 books, total pages 11,250. Records must also be kept on test papers, art work, special projects, and display materials.

Permanent records (grades, attendance, evaluations, and the like): 2700 total recordings.

Moneys collected (requiring records for twelve different funds): $702.85.

Book-reading count: six distributions of thirty-five library books each —210. If each child reads ten books per period—1800 checkings. If five children read all books each period—1050 checkings.

—MARGARET E. CONRAD, *Nappanee, Ind.*

Teacher-Politician

SHERMAN IVERSON, guidance director for the Duluth public schools, has also helped to guide his city council since first elected member-at-large in 1956.

A certified psychologist, Mr. Iverson is a member of the Governor's Advisory Board on Handicapped, Gifted, and Exceptional Children, and a member of the State Advisory Committee on Guidance, Counseling, and Testing.

In the teaching field, he is a member of the Duluth Principals and Supervisors Association, the Minnesota Counselors Association, MEA, and NEA.

—DORA MARY MACDONALD, *director of public relations, Board of Education, Duluth.*

Confusion over Projects

THIS seems to be the day of burgeoning NEA projects, and I am impressed—projects on the academically talented, dropouts, instruction, juvenile delinquency, and many more.

However, I am confused by two of the new projects—the project on Automation and the one on Technological Development. Isn't there duplication here? If not, how are their concerns defined?

—JANE WILHELM, *assistant principal for instruction, McLean (Va.) High School.*

♦ *Basically, the Automation Project under Luther H. Evans, is studying the broad social implications of automation as they affect education. The Technological Development Project, under James Finn, is studying the effects of technology on the instructional process—how technology can improve actual learning and teaching by means of teaching machines, television, and other new tools.* *(See page 27.)*

Regrets

I'D TAUGHT forty-two years before attending a national convention of the NEA. The experience was such a great

(Continued on page 60)

NEW NEA PUBLICATIONS

THE following new publications may be ordered from the NEA or its departments, as indicated, 1201 16th St., N.W., Washington 6, D.C. Prices quoted, unless otherwise specified, are for single copies and subject to discount on quantity lots of the same item and issue: 2-9 copies, 10%; 10 or more, 20%. For a listing of more than 1000 NEA publications, request a free copy of the current *NEA Catalog of Publications.*

Candid Camera in the Classroom. Camera, focusing on kindergartners, seven-year-olds, and preteens, takes reader behind scenes in classroom. 1961. 36p. 85¢. Stock No. 28-112. Dept. of Elementary-Kindergarten-Nursery Education. Order from Pub. Sales.

Dr. DCT. United profession membership skit. 1961. 16p. Single copy free. Order from Dept. of Classroom Teachers.

Education and Economic Growth by Harold M. Groves. Pros and cons on the issue of the value of education as an investment. 1961. 58p. $1. Stock No. 51-129. Committee on Educational Finance. Order from Pub. Sales.

Elementary School Organization: Purposes, Patterns, and Perspective. 1961 Yearbook. 250p. $4. Stock No. 18-030. Order from Dept. of Elementary School Principals.

In-Service Training for Teachers of Adults. Details for planning and conducting three in-service training programs. 1961. 24p. $1. Stock No. 3-100.08. Order from Natl. Assn. of Public School Adult Educators.

Keys to Competence and Professional Autonomy. List of publications available from DCT. 1961. Free in limited quantities. Order from DCT.

New Horizons: The Becoming Journey. Summary of TEPS conference discussions based on report of TEPS special project, New Horizons for the Teaching Profession. 1961. 32p. Free. Order from Natl. Commission on Teacher Education and Professional Standards.

Parliamentary Procedure. Reprinted from *Official Report 1960-61.* 4p. Single copy free. Order from DCT.

Resolutions for Results. Reprinted from *Official Report 1960-61.* 4p. Single copy free. Order from DCT.

Salaries Paid Central-Office School Administrators, 1960-61, Urban Districts 30,000 to 100,000 in Population. *Research Report 1961-R15.* Presents, by districts, salaries paid administrative and supervisory officers and their professional and technical assistants in general administration, business administration, educational divisions. 103p. $1. Stock No. 43-587. Research Div. Order from Pub. Sales.

Salary Scheduling. Revision of *Discussion Pamphlet VIII.* Published jointly by DCT and Research Div. 1961. 24p. 25¢. Stock No. 11-907. Order from Pub. Sales.

Supervision in Action. Reviews experiences of a new supervisor; trends in supervision; theoretical background; and status report of good, current supervisory practices. 1961. 64p. $1.25. Stock No. 61-149. Order from Assn. for Supervision and Curriculum Development.

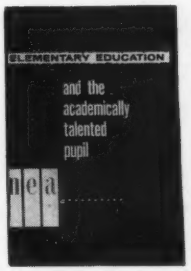
"Teaching: A Profession." Poster illustration of 1961-62 theme—suitable for bulletin boards and other display purposes. Two sizes: 8½" x 11", and 17" x 22". Free in limited quantities. Order from DCT.

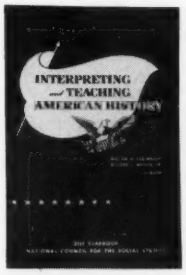
Why Not Build It? Making ventures in creative construction an integral part of the curriculum. 1961. 6p. Single copy free; additional copies 10¢ each; 20 copies $1. Stock No. 28-724. Order free copy from E-K-NE, others from Pub. Sales. # #

NEA Publications Help You . . . to improve instruction

Other Lands, Other Peoples has been completely revised and enlarged in this new 1961 edition. Here are basic facts about 107 countries in all parts of the world, including information on geographic features, government and economy, history and culture, education, food, customs and holidays. This 240-page volume was originally published for use by Americans who serve as hosts to foreign visitors under exchange programs, but its value as a sourcebook is unlimited for schools. 1961 edition, $1.50

Elementary Education and the Academically Talented Student takes a look at the problem of meeting the needs of that portion of our elementary-school population which may be identified as academically talented. Designed especially for elementary-school educators, this publication should stimulate schools at the local level to reappraise their programs to determine whether the needs of all children are being met; and, provide some guidelines for sound appraisal and action. 96 pages, $1





Interpreting and Teaching American History is the new 31st yearbook of the National Council for the Social Studies. Prominent authors in both history and education point out for the teacher new methods and ideas which can be used to impart to the student the enthusiasm to investigate critically the past and to interpret the real significance of history. Here are pointed out opportunities for the teachers which are unprecedented. 448 pages. Paper, $4; cloth, $5

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Payment for Jury Duty

AWARE of the need for good jurors and of the civic responsibilities that teachers should assume, the board of education in Pottsville, Pennsylvania, pays teachers on jury duty the difference between their full salary and the amount received for serving as jurors.

The board policy, adopted in April 1961, applies to jury duty in any of the courts of the Commonwealth or in a federal court. Before adopting this policy, two other proposals were discarded as unfeasible. One of these would have paid the employee his full salary, less salary payments to a substitute teacher. The board discarded this plan on the grounds that it would be inflicting a penalty on the regular teacher. The other plan would have paid the employee his full salary while he was absent. This proposal would have enabled the teacher to profit by serving on a jury.

The board will require proof as to the number of days spent on jury service, just as in the case of an absence because of illness.

The same ruling on the deduction from pay applies if a school-district employee is attending court as a witness under a subpoena or as a litigant with cause arising from school duties.

—JEAN N. SCHRAEDLEY, *newspaper reporter, Pottsville, Pa.*

OUR READERS WRITE

(Continued from page 58)

source of inspiration that I came away realizing how different my work might have been had I attended such a meeting many years earlier instead of two years before retirement.

—J. H. GROVES, *Sistersville, West Va.*

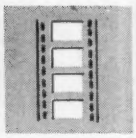
Windowless Classrooms? Yes!

I SAW a copy of the October JOURNAL in school recently and was especially interested in the opinions-differ feature on windowless classrooms.

As a high-school student with six classes a day—one in an air-conditioned and windowless classroom—I just want to say that I much prefer the windowless room. It is never too hot or too cold or drafty. There is no glare, dirt, or noise from windows. There is lots of display space. And the room just seems to me to be more businesslike and efficient.

—CYNTHIA ROCK, *Bethesda, Md.*

AUDIO-VISUAL MATERIALS



Business Education

The following films and filmstrips are recommended by Carolyn Guss, Indiana University. Additional information is available from the producers and distributors listed below.

Bookkeeping Series. 6 filmstrips. color. A graphic presentation of basic bookkeeping cycle. (5)

Business Education Series. 6 filmstrips. color. Treats major topics and trouble spots in training clerical and secretarial students. (5)

Business Etiquette Series. 11 filmstrips. b&w. How to get and keep the right job. (5)

The Check Collection Process. Motion picture. 21 min. sd. b&w. The check collection procedures of the American banking system. (4)

Duplicating by the Spirit Method. Motion picture. 14 min. sd. color. (1)

Filing Procedures in Business. Motion picture. 11 min. sd. color and b&w. Shows central filing room of a large business and stresses five rules of filing. (2)

Gregg Typewriting Series. 12 filmstrips. sd. 2 sets of 6 each. b&w and color. Teaches the correct use of the typewriter and important typing techniques. (5)

Personal Financial Planning. Motion picture. 11 min. sd. color. Emphasizes importance of a personal financial plan. (7)

The Role of the Commercial Banking System. Filmstrip in three parts. color. Presents the growth and development of money and banking, the services of the bank, and banking and the economy. (3)

Secretarial Training Series. 12 filmstrips. sd. 2 sets of 6 each (set 1 in b&w; set 2 in color). Advice on improving secretarial skills. (5)

This Business of Numbers. Filmstrip. sd. color. Comprehensive history of the number system and functions of UNIVAC. (6)

The Wise Use of Credit. Motion picture. 10 min. sd. color. Explains the five aspects of consumer credit. (7)

(1) Bailey Films, Inc., 6509 DeLongpre Ave., Hollywood 28, Calif.; (2) Coronet Films, 65 E. South Water St., Chicago; (3) Indiana Bankers Association, 810 Union Title Building, Indianapolis; (4) Indiana University, Audio-Visual Center, Bloomington, Ind.; (5) McGraw-Hill Text Films, 330 W. 42nd St., New York 36; (6) Remington Rand Division, Sperry Rand Corporation, Visual Aids Dept., 315 4th Ave., New York; (7) Sutherland Educational Film, Inc., 201 N. Occidental Blvd., Los Angeles 26. # #

I Remember . . .

MARY Ellen was perhaps the loneliest girl ever to step across my sixth-grade threshold. Tension and anxieties engendered by outside-of-school conflicts caused her to claw her arms and face until they bled.

Children whose lives were happy and carefree couldn't be expected to comprehend Mary Ellen's burdens. Without meaning to, they made it clear how repulsive she appeared to them. They didn't tease her. They let her alone—so very much alone!

During gym periods, the class began to learn to dance. When partner time came, Mary Ellen was always the one not chosen. She became my constant partner. She danced well and I tried to demonstrate that fact by choosing her to show the class new steps. I complimented her before the group. But nothing I did worked; she was still alone.

One day in desperation I privately asked Neale, the most popular boy in the class, if he'd be willing to give Mary Ellen some badly needed help.

Neal had the confidence that is typical of a happy, well-adjusted individual. He hesitated only a moment, then asked, "Is what Mary Ellen has catching?"

Convinced by me that emotions and not bacteria were the cause of her plight, Neale was glad to cooperate. Next gym period he chose Mary Ellen as his dancing partner and gave every evidence of enjoying her company. Later I overheard him say to his friends, "Mary Ellen is really a smooth dancer. I'm going to dance with her again." He did. Before long, first one boy followed suit; then several more.

At the end of the year, Mary Ellen left school because her family moved away, and I can never be sure how much this help did for her. Six years later, however, she returned for the senior banquet—attractive and with a look of quiet confidence. Neale's eyes met mine for an instant as she entered the room. He winked. I smiled. Mary Ellen had made the grade!

—RUTH C. LEMBKE, *psychometrist, Wauwatosa (Wisconsin) Public Schools.*

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Unless otherwise indicated obtain government publications from the Superintendent of Documents (Supt. Doc.), Washington 25, D.C. Make money order or check out to the Superintendent of Documents: do not send stamps. ***Order other items from addresses given.***

Human Rights Day (Dec. 10), U.S. Bill of Rights Day (Dec. 15), Human Rights Week (Dec. 10-17). Includes suggestions for planning appropriate observances, as well as U.S. Bill of Rights, Declaration of the Rights of the Child, and the Universal Declaration of Human Rights. 5¢ per copy; $3.75 per 100. U.S. Natl. Commission for UNESCO. Order from Supt. Doc.

Human Rights Day Materials Kit. Helpful in making plans for Human Rights Day observances. Free to teachers as long as supply lasts. U.S. Natl. Commission for UNESCO, Dept. of State, Washington 25, D.C.

Guides to Newer Educational Media: Films, Filmstrips, Phonorecords, Radio, Slides, Television. By Margaret I. Rufsvold, and Carolyn Guss. 1961. 74p. $1.50. Produced by the American Library Assn. in cooperation with the U.S. Office of Education. Order from ALA Publishing Dept., 50 E. Huron St., Chicago 11.

Pogo Primer for Parents (TV Division) by Walt Kelly. Children's Bureau *Headliner Series.* Reassures parents with helpful dos and don'ts about when and how often children should watch television. 1961. 24p. 20¢; quantity discounts. Supt. Doc.

Science and Mathematics Materials for Elementary Schools (Kindergarten through grade 8). A catalog presenting a wide range of materials designed as challenges for children and aids to the elementary-school teacher. 1961. 48p. Free. Science Materials Center, 59 4th Ave., New York 3.

Studies in the Mass Media. NCTE magazine (published monthly Oct.-May), designed for use of teachers and students; and devoted to studies in the appreciation and comprehension of films, television, magazines, newspapers, and paperbacks. Single copies 30¢; annual subscription $2; quantity discounts. Natl. Council of Teachers of English, 508 S. 6th St., Champaign, Ill. # #

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The Art of Giving Directions

THE third-grade teacher has just passed out maps of her pupils' home town and is explaining how they are going to use the maps. "To see the many ways land is used in our town," she tells them, "we can take our colored pencils and shade in the different areas. We can begin, for instance, by shading the playgrounds and parks in green. As we color each area, let's make a note on a separate paper of the kind of area we are shading in. Since we are going to paste these maps in our notebooks later, it wouldn't be a good idea to write our list on the back of the map, would it? You can imagine what would happen if your list were on the back of the map—you couldn't see it after it was pasted in your notebook!"

The teacher continues to describe the activity, convinced that she is making every effort to communicate effectively, using precise thoughts, speaking clearly and in good volume, demonstrating the technique several times, and so on.

Soon after the children start working, the teacher observes several of them writing their list on the backs of their maps. "Didn't you understand that you were to write the list on a separate piece of paper and not on the backs of your maps?" she asks them.

"Oh, we heard you say that it wouldn't be a good idea to put them on the backs of the maps," they answer, "but you didn't say we *couldn't*."

GIVING specific directions is an art that can be developed by each individual as he finds his own personal pattern of effectiveness. The pattern will vary from group to group, from day to day, and from year to year, but certain qualities are basic to effective direction giving. The following questions should be considered by the teacher:

Selection of words. Do the pupils understand each word as well as the grouping of them? Are there new words that need to be defined in the directions being given? What sentence structure best conveys the idea?

Timing. Have the pupils been prepared to listen? Is the stage set for their learning?

Volume and tone of voice. Are the directions being given loudly enough, but not too loudly? Is the tone of the voice distinct and pleasing? (Listening to themselves on a tape recording helps teachers to regulate their voices.)

Demonstrating. What aids will reinforce verbal directions? Might a child demonstrate what the group is being asked to do? Should the directions be written on the chalkboard after they are spoken?

Evaluation. What are the pupils' reactions to the directions? Do they seem puzzled? Might a child reword the directions and thus re-explain them?

As a follow-up to direction giving, the teacher should notice how the children begin the activity, how they continue it, or (if it is a test situation) how they complete it. Each teacher's effectiveness can improve as he notes his own growing skill in refining and developing the personal art of giving directions.

—DOLORES E. B. PARRY, *language arts teacher, Ward-Jackson Elementary School, Union City, Indiana.*

Cartoon by Joseph Mirachi, Saturday Review

"Well, I did it . . . but don't ask me how."

TEACHERS' TRADING POST

(Continued from page 56)

shy child, seeing this accepting reaction of his classmates, gains courage to contribute and begins to speak up for himself in other ways.

To lead the children into gaining a concept of reading, Mrs. Coulon lets them make "books" of their pages of illustrations to which she has clipped the typed stories. They make covers with colored construction paper, paper punches, and paper fasteners. When the pages are properly bound, they are placed on special shelves in the book corner.

The children often prefer the books of their own making rather than the fine library books at their disposal.

From one small science unit on plants last spring, there grew enterprising, if not mighty, gardeners. Allene Martin's second graders in Bon View School, Ontario, California, not content with reading about plants in books or watching them grow in films, grew their own in the classroom from stems, roots, and seeds. The ambitious youngsters moved on to flower growing in home gardens with parents as consultants on where, what, and how. Their activities rewarded them with glowing bits of color in neighborhood gardens, new concepts of beauty, new interests, and a larger vocabulary.

Sixth-grade children in Burleson School, Odessa, Texas, make apportionment of classroom chores easy for their teacher, H. H. Miller. They divide themselves into five groups—one group for chore duty each day of the school week.

Adalyn Van Gilder has found a way to get her first graders to read with more expression. After Randy reads a selection, she asks the class, "Did the way Randy read sound like Randy or did it sound like Jack, the boy in the story?" If the children decide that Randy sounded more like himself than like Jack, Randy usually wants another opportunity to read the selection. Mrs. Van Gilder is teaching supervisor, first grade, Mary E. Rickenbach Laboratory School, Kutztown (Pennsylvania) State College.

To teachers at all levels: This is your regular feature for idea swapping. What classroom problems would you like to see discussed in this column? What are your favorite classroom-tested procedures? Let's trade ideas. Please send succinct statements to "Teachers' Trading Post." NEA JOURNAL, 1201 16th St., N.W., Washington 6, D.C. # #

RECESS

Give the Boner an Even Break

The eager beavers in a schoolroom are a delight and a joy. They soak up all you give them and give it back to you syllable for syllable on test days. But often their test papers make very dull reading!

It's the child who only half listens and then thinks up what seems to him a logical answer who adds the zip to paper grading. Take the child who said the Ural Mountains were in Uruguay or the one who reasoned that woman suffrage means that women can only work so long or they'll suffer, or the boy who tells you that the Federal Bureau of Investigation invests money for people.

When I first began to teach, such answers worried me; I felt I was failing as a teacher, that I couldn't get subject matter across. So I tried harder, but I still got answers like these: The Articles of Confederation failed because the President left them on his desk; England passed the Stamp Act to get money to send the mail.

Finally I began to notice that such answers were not coming from the low-IQ students—who tend to leave blank the questions they can't answer—but from the average students. They don't have the top brains, but they do have imagination and enough spunk to take a crack at almost any question; to venture a guess at what seems logical in hopes that they may accidentally hit the answer.

Once this fact had penetrated *my* brain, I saw that in our area where Tharp is a common name, it is natural, not stupid, for a child to say that Ogles Tharp founded Georgia. Realizing too that ours is a rural community, I understood why one of my pupils defined a money order as something you send to Sears, Roebuck and Company, along with shoe sizes and the number of the part for the tractor.

Now I look forward to grading papers. This may be the night when, plodding through a monotonous succession of right answers, I stumble over a poet named Lonefeller and fall into giggling.

But don't tell my sixth graders, or they'll work overtime to send me into gales the next time I'm grading their test papers.

—SHIRLEY WILLIAMSON, *Wickliffe Elementary School, Wickliffe, Ky.*

♦ *All contributions are gratefully received, even though they cannot be acknowledged or cleared.*

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Editor's Notebook

"DEAR Parents: If you'll promise not to believe everything your child tells you about what happens in school, I'll promise not to believe everything I hear about what happens at home."

Some reports say that a second-grade Mississippi teacher each year pins this note to the jackets of new pupils. Others say this proposition was made to parents in a Lancaster, California, school publication. Whether this approach is used in Mississippi or California—or Pennsylvania or Iowa, as other rumors indicate—it points up a problem which teachers everywhere recognize. You can't be the topic of dinner-table conversation in anywhere from thirty to 180 homes without parents' acquiring all kinds of ideas about you.

WHEN a child announces to you, her teacher, "My daddy is making $15 a month now," you surmise her father may have received a raise of $15 a month. But when she confides, "Mom says you must be crazy," you have no way of knowing the mother added, "after being cooped up in a classroom this rainy day with thirty-two kids." Despite all your experience in separating children's fact from fiction, you aren't always sure how to interpret their revelations.

It's easy to understand, therefore, why parents, lacking your wholesale opportunities to evaluate misinterpretations, can get some pretty odd impressions. Consider for example the parents'-eye-view of:

. . . the high-school teacher in Mobile, Alabama, who assigned parts for the Shakespearean play: Bob to be the king; Joe, a duke; and Marvin, the fool. She received a note next day: "I do not appreciate the fact that you called Marvin a fool, and I doubt if the school board will like it when they hear from me about this."

. . . the first-grade teacher in Walla Walla, Washington, whose pupil told his mother he had to wear blue jeans thereafter. Teacher had said, "Blue is a primary color."

. . . the junior high-school teacher in Ardmore, Oklahoma, who gave his students a booklist for outside reading. A boy told her later, "Pop says I can't read one of those books. It looks unpatriotic to him—*All Quit on the Western Front*. Pop says they didn't."

. . . the second-grade teacher in San Diego who was absent in poison-oak bondage. "I feel sorry for our teacher," one little girl mourned at home. "They say her face is covered with ivy league."

. . . the coach in East Lansing, Michigan, about whom the rumor circulated that he was losing his memory. "He has someone on the team open his locker for him after practice every day," the boys told their parents. When the word reached the coach, he started taking his glasses to the locker with him so he could read the numbers on the combination lock.

. . . the Seattle kindergarten teacher who taught the boys and girls "America." One child that night begged her father to leave this country because "America is the land where our fathers die."

. . . the Milwaukee primary teacher who gave the children slips, regarding a field trip, to take home for parents' signatures. When one youngster failed to return his, the teacher reminded him, "Please ask your mother to send me that slip." The child that afternoon thrust a paper sack at the teacher and in it was a lacy undergarment.

. . . the Salt Lake City teacher, who was charged by a mother with instructing social-studies students how their parents should vote in a coming election. The teacher asked the son why he had taken home that erroneous report. "Oh," he said, "a fella makes a statement jokingly, and his mother takes it seriously and gets on the phone."

THOUGH the misinformation children spread is an occupational hazard, you generally make out all right—

Because you don't make careless comments that invite misconceptions.

Because, when necessary, you explain to students the why of school activities and assignments.

Because your school has an effective public-relations program and an active PTA.

Because you become acquainted with as many of your children's parents as you possibly can.

And most important, simply because you do a good job of teaching.

YET despite all this, there may be times when you wish parents could receive the advice Edward Everett, former governor of Massachusetts, gave in an address at Cambridge High School in 1859: "Do not listen to every tale of childish grievance against the master . . . nine times out of ten the grievance is imaginary."

If parents take children's accounts about school as skeptically as you take children's stories from home, you'll have an extra something to be thankful for on Thanksgiving Day.

Mildred S. Fenner

QUOTE AND REQUOTE

Short Sellers

When little tykes trudge off to school
With pictures, pets, and knicks and knacks,
Mom knows the day is "Show and Tell"—
All arms are laden. Also backs.

Yes, coast to coast wee operators
Plug their lines and learn hard sell,
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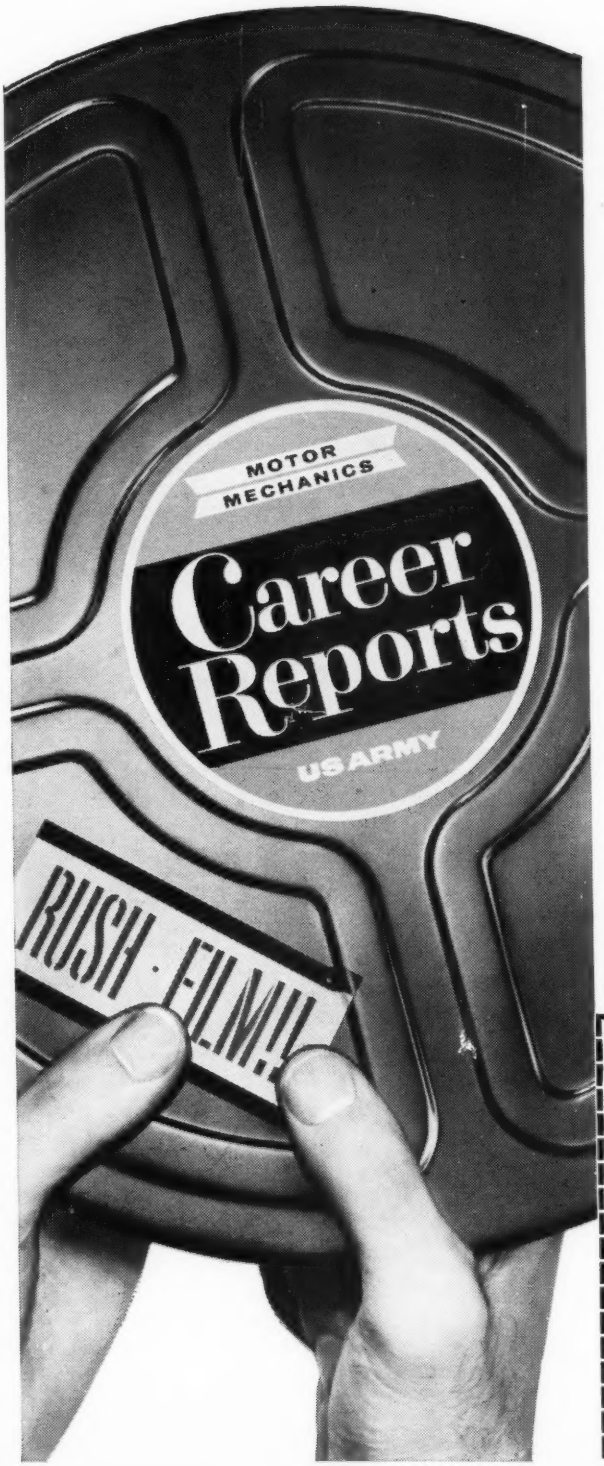
—DONALD S. KLOPP in *Phi Delta Kappan*

Automatic Repeaters

Out of the mouths of innocent babes
True wisdom may be spread,
As well as some of the unwise things
Their parents shouldn't have said.

—S. OMAR BARKER

To help you guide the seniors who don't go on to college



A new solution to a serious guidance problem. The secret of getting ahead is planning ahead. For seniors in search of a career, it's essential to know the pros and cons of an occupation before selecting it. But until now, visual guidance materials have been sorely lacking to help you counsel one large category of young men—the seniors who aren't able to go on to college. Career Reports is a new series of motion pictures created to fill this serious gap in the average vocational guidance program.

Vocational facts for high school graduates. Each Career Reports film describes an occupation for which a college degree is not ordinarily a prerequisite. (Vocations considered by the series include Motor Mechanics, Electronics, Metal Working, Construction, Law Enforcement, etc.) The advantages and disadvantages of each field are presented clearly and objectively. Men actually on the job describe their work—and how they happened to get into it. Up-to-date facts are presented in an interesting, lively format—and the guidance counselor is suggested as a source of additional information and advice.

Who sponsors this project? Career Reports is sponsored by the Department of the Army, with cooperation from the American Personnel and Guidance Association, and other recognized vocational authorities.

What is the Army's purpose? Each film in the series conveys a distinct axiom: training is indispensable to success in any skilled occupation. Beginners can acquire this training in one of several ways—on the job (by means of formal or informal apprenticeship), through a trade school or company training program, or in the Armed Services. The Army's purpose is achieved simply by being recognized as one of the possible ways in which a young man can secure essential vocational training.

An early reservation is advisable. For the first time, a comprehensive guidance tool has been prepared specifically for high school graduates not able to go on to college. The Career Reports series is available (without charge) to teachers and guidance counselors in the United States. Reservations must be made early in order to incorporate Career Reports into your guidance program for the coming academic year. May we therefore suggest that you mail the coupon today for free details.

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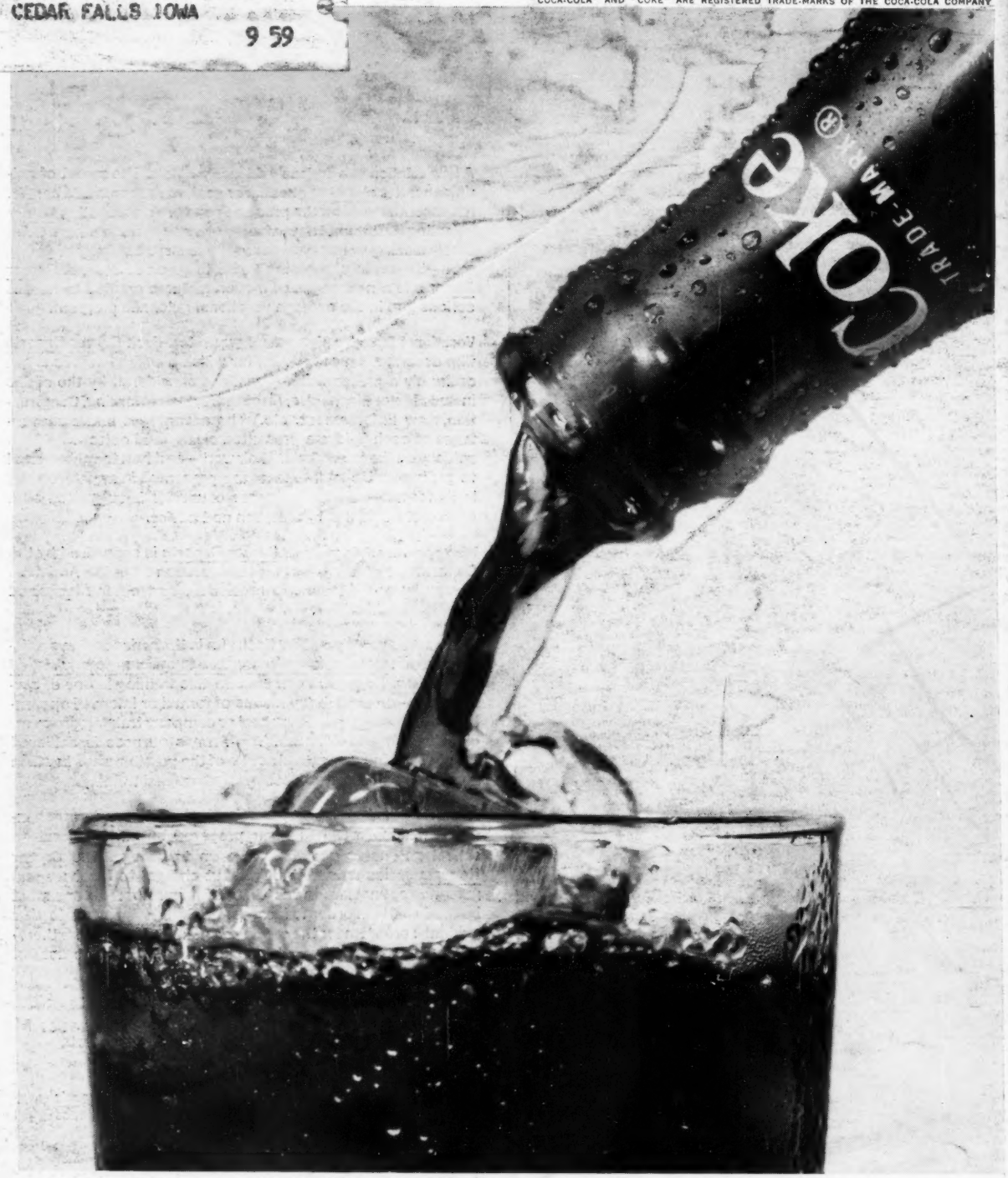

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